



Water Quality Standards Revisions Supporting Documentation Proposed Changes to R317-2-3 Antidegradation Policy, R317-2-11 Public Participation, R317-2-13 Classifications of Waters of the State, and R317-2-14 Numeric Criteria *Draft for Discussion, July 17, 2017*

Summary

1. In R317-2-3.5.e. Antidegradation Policy Public Notice, a requirement to public notice and comment revisions to the Antidegradation Implementation Guidance were added to ensure consistency with federal requirements.
2. In R317-2-11 Public Participation, Revisions are proposed that will result in longer public notice and comment periods than existing practice. These changes clarify the public participation to be consistent with both federal requirements and Utah statutory requirements.
3. In R317-2-13 Classifications of Waters of the State, informational footnotes were added to the tables. The footnotes identify waters where site-specific standards apply to a use, e.g., Class 4. No changes to the actual uses or criteria were made. These footnotes are a nonsubstantive change because they are informational only.
4. In R31-2-14 Numeric Criteria, the human health criteria in Table 2.14.6, the majority of the human health criteria are updated with most of the proposed criteria being more stringent than existing criteria. The human health criteria are intended to be protective when the a water is used as potable water source and aquatic life are potentially consumed by humans. The criteria for pollutants with current United States Environmental Protection Agency (USEPA) drinking water Maximum Contaminant Levels but no current USEPA human health criteria were moved from Table 2.14.6 to the Class 1C use in Table 2.14.1. Moving the pollutants to Table 2.1.4.1 does not affect the classification of any Class 1C water or applicable numeric criteria.

The remainder of this document includes a more detailed explanation of the substantive changes and Attachment 1 is a redline/strikeout version of R317-2 that shows the proposed revisions in the rules.

Detailed Explanation of Revisions

1. R317-2-3.5.e. Antidegradation Review Public Notice

A requirement is proposed that provides an opportunity for public comment whenever substantial changes are made to the Antidegradation Implementation Guidance referenced in R317-2-3.5.f. Placing this requirement in rule ensures that future modifications to the Implementation Guidance will be done consistent with the updated USEPA requirements in 40 CFR § 131.12(b), which states that “The State shall provide an opportunity for public involvement during the development and any subsequent revisions of the implementation methods.”

e. Public Notice

The public will be provided notice and an opportunity to comment on the conclusions of all completed antidegradation reviews. When possible, public notice on the antidegradation review conclusions will be combined with the public notice on the proposed permitting or certifying action. In the case of UPDES permits, public notice will be provided through the normal permitting process, as all draft permits are public noticed for 30 days, and public comment solicited, before being issued as a final permit. The Statement of Basis for the draft UPDES permit will contain information on how the ADR was addressed including results of the Level I and Level II reviews. In the case of Section 404 permits from the Corps of Engineers, the Division of Water Quality will develop any needed 401 Certifications and the public notice may be published in conjunction with the US Corps of Engineers public notice procedures. Other permits requiring a Level II review will receive a separate public notice according to the normal State public notice procedures. The public will be provided notice and an opportunity to comment whenever substantive changes are made to the implementation procedures referenced in R317-2-3.5.f.

2. R317-2-11 Public Participation.

In addition to the requirements of Utah’s administrative procedures, Utah has specific statutory notice requirements in [Title 19 Chapter 5 Section 110](#) for water quality standards. Applicable federal regulations are found in 40 CFR § 131.20 and 40 CFR Part 25. To meet the federal requirement of at least 45 days’ notice before a public hearing, the rule is proposed to be revised to require at least 45-days notice prior to the public hearing. The notice period will begin when the notice is available on State websites. The rule was also revised to explicitly include the key Utah statutory requirements. Past and ongoing revisions to the standards comply with these requirements and the revisions are intended to provide transparency and ensure future consistency.

R317-2-11. Public Participation.

Public notices and public hearings will be held for the consideration, adoption, or amendment of the classifications of waters and standards of purity and quality. Public notices shall be published at least twice in a newspaper of general circulation in the area affected at least 30 days prior to the public hearing(s). The notice will be posted on a State public notice website at least 45 days before the hearing(s) and a notice will be mailed at least 30 days before the hearing(s) to the chief executive of each political subdivision and other potentially affected persons. Public hearings will be held to review all proposed revisions of water quality standards, designations and classifications, and public meetings may be held for consideration of discharge requirements set to protect water uses under assigned classifications.

3. R317-2-13 Classifications of Waters of the State

Informational footnotes were added to the tables and some descriptions were corrected for formatting. The footnotes identify waters where site-specific standards apply to a use, e.g., Class 4. No changes to the actual uses or criteria were made. These footnotes are a nonsubstantive change because they are informational only. The text of the footnotes is: [Site-specific criteria are associated with this use for some or all of the waters described.](#)

4. R317-2-14 Numeric Criteria

In 2015, USEPA updated the ambient water quality criteria for the protection of human health for 92 pollutants. The existing criteria for these pollutants are found in Table 2.14.6 in UAC R317-2-14. These criteria are intended to minimize the risk of adverse effects occurring to humans from chronic (lifetime) exposure to substances through the ingestion of drinking water and consumption of fish obtained from surface waters. USEPA bases the criteria on the most sensitive endpoint of cancer health effects, noncancer health effects or organoleptic (taste and odor) effects.

The 2015 USEPA revisions applied updated chemical and toxicological parameters to the USEPA 2000 methodology. The updates reflect the latest scientific information and EPA policies, including updated body weight, drinking water consumption rate, fish consumption rate, bioaccumulation factors, health toxicity values, and relative source contributions USEPA. Table 1 presents USEPA's current (2017) recommendations for all human health criteria.

As with all criteria recommended by USEPA, Utah has the option of modifying the criteria to better reflect Utah-specific conditions. Table 1 compares the current USEPA criteria (2015 updates and others) with the criteria in Utah's water quality standards. As shown in Table 1, many of Utah's criteria are less stringent and some are unchanged or more stringent. Table 2 lists the pollutants that are in Utah's Table 2.14.6 but are not currently included by USEPA. The last column in Tables 1 and 2 lists the recommended action for the Utah Water Quality Board. These changes are discussed in more detail below.

Exposure and bioaccumulation. Drinking water ingestion rates, fish consumption rates, and body weights are based on national data, and in the absence of Utah-specific data, are the best available to represent Utah. The toxicity and bioaccumulation values are peer-reviewed and based on a comprehensive review of the available data. The relative source contribution was also based on the currently available data in the literature. These parameters are recommended as the best available for deriving appropriate criteria for Utah.

Cancer risk. For cancer effects, USEPA's updated criteria are based on an excess lifetime cancer risk of one in a million (10^{-6}). When applicable, Utah's current criteria are based on this same cancer risk (see Footnote B, Table 2.14.6, UAC R317-2-14). No changes to the target cancer risk of 10^{-6} are proposed.

Applicable Use categories. USEPA's criteria are based on two exposure scenarios: water and organism and organism only. Utah elected to link the criteria for these two exposure scenarios to existing use classes. Table 2.14.6 identifies that the criteria apply to Class 1C waters for the water and organism criteria and to Class 3A-D waters for the organism only criteria. This means that both the criteria in

Table 2.14.1 and Table 2.14.6 are applicable for Class 1C waters. Similarly, the criteria for organism-only in Table 2.14.6 and the criteria in Table 2.14.2 are applicable for Classes 3A-D for these waters. Some pollutants are listed in both tables. To help ensure that the applicable criteria are readily identifiable, a note is proposed to be added to Tables 2.14.1 and 2.14.2 that additional applicable criteria are included in Table 2.14.6 as follows:

TABLE 2.14.1
NUMERIC CRITERIA FOR DOMESTIC,
RECREATION, AND AGRICULTURAL USES

Parameter	Domestic Source 1C(1)	Recreation and Aesthetics 2A 2B	Agri- culture 4
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(1) ~~Reserved~~ Also applicable are the water + organism criteria in Table 2.14.6

TABLE 2.14.2
NUMERIC CRITERIA FOR AQUATIC WILDLIFE(8)

Parameter	Aquatic Wildlife				
	3A	3B	3C	3D	5

(8) ~~Reserved~~ Also applicable are the organism-only criteria in Table 2.14.6

To avoid any confusion regarding the specific pollutants, the Chemical Abstracts Service (CAS) registry numbers will be added to Table 2.14.6.

Magnitude and Duration. USEPA (2002) does not recommend a specific duration for the criteria. No duration is currently specified for the criteria in Table 2.14.6 in UAC R317-2 and the criteria are accordingly implemented as not-to-exceed. The derivation of the health-protective criteria assumes averaging times for carcinogenic and noncarcinogenic pollutants of 70 and 30 years, respectively, assuring that human health will be protected is impractical for durations of 70 or 30 years. Shorter averaging times are protective of longer averaging durations.

Pollutants. As shown in Table 1, for pollutants that the current USEPA criteria and Utah criteria are identical, no action is recommended. For the pollutants corresponding to “Update to USEPA” in Table 1, adoption of the current USEPA criteria are recommended based. Pollutants currently listed in Table 2.14.6, without numeric criteria and no existing USEPA human health criteria were deleted.

The 2002 USEPA recommended human health criteria for arsenic are 0.08 and 0.14 µg/L for water + organism and organism-only, respectively. These criteria are much more stringent than the drinking water MCL of 10 µg/L. Like Utah, other Region 8 States have non-anthropogenic concentrations of arsenic that exceed the MCL and frequently would exceed the current USEPA criteria for protection of human health. Arsenic was not detected in 42% of the samples from the AWQMS data used for the 2016 *Integrated Report*. The analytical method (200.8) typically has a method detection limit of 1 µg/L which is insufficient for demonstrating compliance with the current USEPA criteria for the protection of human health. If the current USEPA criteria were adopted, the 58% of the 2016 *Integrated Report* samples in which arsenic was detected would exceed the standards. An implementation plan is needed

prior to changing the arsenic criterion. Utah will continue to monitor progress in other Region 8 states as they develop implementation methods for the implementing the arsenic criteria. No changes are currently recommended for Utah's arsenic criteria for the protection of human health.

USEPA recommends a water + organism nitrate criterion of 10,000 µg/L which is the same as the MCL. USEPA does not have an organism-only criterion. The Class 1C criterion in Table 2.14.1 for nitrate is identical and a redundant criterion in Table 2.14.6 is unnecessary.

For 1,1,1-trichloroethane and 1,1-dichloroethylene, the existing Utah criteria in Table 2.14.6 are based on MCLs that are more stringent than the USEPA organism + water criteria. For these two pollutants, adoptions of the USEPA human health criteria are recommended and that the MCLs be adopted and added to the Class 1C use in Table 2.14.1.

USEPA recommends a water + organism criterion for manganese that is based on organoleptic effects and laundry staining. For manganese, Utah's existing Narrative Standards are judged adequately protective and adoption of the non-health related criteria unnecessary.

Utah's existing mercury water quality criteria was adopted prior to USEPA developing the fish tissue criterion 0.3 mg/kg wet weight for methylmercury. Utah's mercury criterion is based on a not exceeding 1 mg/kg in fish and a bioaccumulation factor of 25,000 from water to fish. While Utah's target fish concentration is three times higher than USEPA's criterion, the factor of three differences between USEPA's criterion and Utah's target fish concentration is not substantially different in the context of the bioaccumulation factor and other uncertainties in modeling mercury in the water to methylmercury in fish. DWQ continues to support the 12 ng/L as being adequately protective of human health. However, this criterion is not based on protecting aquatic life and should be relocated to Table 2.14.6. In addition, implementation methods for incorporating the tissue-based criterion into discharge permits are still being developed. These same issues are anticipated for implementing the USEPA tissue-based selenium criteria in discharge permits. DWQ anticipates similar implementation methods can be used for mercury and selenium and recommends that these two pollutants be evaluated in tandem. When these methods are developed, Utah can determine how best to incorporate a fish-tissue criterion for methylmercury.

Table 2 shows the pollutants currently listed in Table 2.14.6 but do not current USEPA criteria for the protection of human health. Pollutants without USEPA human health criteria or a drinking water MCL are proposed for deletion. Lead is proposed for deletion from Table 2.14.6 because lead is included in Table 2.14.1 for Class 1C waters. The remaining pollutants listed in Table 2 will be deleted from Table 2.14.6 and the MCLs added to Table 2.14.1 for Class 1C waters.

REFERENCES FOR HUMAN HEALTH CRITERIA

<https://www.epa.gov/wqc/human-health-documents>

[Fact Sheet: Human Health Ambient Water Quality Criteria: 2015 Update \(PDF\)](#)(3 pp, 144 K)

[EPA Response to Public Comments \(PDF\)](#)(48 pp, 526 K)

[Table comparing EPA's updated 2015 final human health criteria to previous criteria \(PDF\)](#)(4 pp, 133 K)

[Table Summarizing Updated Input Values for EPA's 2015 Final Updated Human Health Criteria \(PDF\)](#)(4 pp, 160 K)

Table 1
Comparison of 2017 USEPA Water Quality Criteria for Protection of Human Health with
Utah Criteria in Table 2.14.6, UAC R317-2-14

Source	Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
USEPA	Acenaphthene (P)	83-32-9	70	90	Organoleptic	
Utah			670	990		Update to USEPA
USEPA	Acrolein (P)	107-02-8	3	400		
Utah			6.0	9		Update to USEPA
				3	Classes 3A-D	
USEPA	Acrylonitrile (P)	107-13-1	0.061	7.0	10 ⁻⁶	
Utah			0.051	0.25	10 ⁻⁶	Update to USEPA
USEPA	Aldrin (P)	309-00-2	0.00000077	0.00000077	10 ⁻⁶	
Utah			0.000049	0.000050	10 ⁻⁶	Update to USEPA
USEPA	alpha-Hexachlorocyclohexane (HCH) (P)	319-84-6	0.00036	0.00039		
Utah			0.0026	0.0049	10 ⁻⁶	Update to USEPA
USEPA	alpha-Endosulfan (P)	959-98-8	20	30		
Utah			62	89		Update to USEPA
USEPA	Anthracene (P)	120-12-7	300	400		
Utah			8300	40000		Update to USEPA
USEPA	Antimony (P)	7440360	5.6	640	MCL	
Utah			5.6	640		
USEPA	Arsenic (P)	7440382	0.018	0.14	10 ⁻⁶ ; MCL	
Utah			150	150	References Aquatic Life Class 1C	
			10			
USEPA	Asbestos (P)	1332214	7 million fibers/L	—	MCL	
Utah			7 million fibers/L			No action.

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Source	Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
USEPA	Barium	7440393	1,000	—	MCL	
Utah			1000		Drinking Water	No action. Existing Class 1C criterion sufficiently protective
USEPA	Benzene (P)	71-43-2	0.58-2.1	16-58	MCL, 10 ⁻⁶	
Utah			2.2	51	10 ⁻⁶	Update to USEPA
USEPA	Benzidine (P)	92-87-5	0.00014	0.011	10 ⁻⁶	
Utah			0.000086	0.00020	10 ⁻⁶	Update to USEPA
USEPA	Benzo(a)anthracene (P)	56-55-3	0.0012	0.0013	10 ⁻⁶	
Utah			0.0038	0.018	10 ⁻⁶	Update to USEPA
USEPA	Benzo(a)pyrene (P)	50-32-8	0.00012	0.00013	10 ⁻⁶ MCL	
Utah			0.0038	0.018	10 ⁻⁶	Update to USEPA
USEPA	Benzo(b)fluoranthene (P)	205-99-2	0.0012	0.0013	10 ⁻⁶	
Utah			0.0038	0.018	10 ⁻⁶	Update to USEPA
USEPA	Benzo(k)fluoranthene (P)	207-08-9	0.012	0.013	10 ⁻⁶	
Utah			0.0038	0.018	10 ⁻⁶	Update to USEPA
USEPA	Beryllium (P)	7440417	—	—	MCL	
Utah			—	—		
			< 4		Class 1C	No action

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Source	Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
USEPA	beta-Hexachlorocyclo-hexane (HCH) (P)	319-85-7	0.0080	0.014	10 ⁻⁶	
Utah			0.0091	0.017	10 ⁻⁶	Update to USEPA
USEPA	beta-Endosulfan (P)	33213-65-9	20	40		
Utah			62	89		Update to USEPA
USEPA	Bis(2-Chloro-1-methylethyl) Ether (P)	108-60-1	200	4,000		
Utah			—	—		Update to USEPA
USEPA	Bis(2-Chloroethyl) Ether (P)	111-44-4	0.030	2.2	10 ⁻⁶	
Utah			0.030	0.53	10 ⁻⁶	Update to USEPA
USEPA	Bis(2-Ethylhexyl) Phthalate (P)	117-81-7	0.32	0.37	MCL 10 ⁻⁶	
Utah			1.2	2.2	10 ⁻⁶	Update to USEPA
USEPA	Bis(Chloromethyl) Ether	542-88-1	0.00015	0.017		
Utah			—	—		Update to USEPA
USEPA	Bromoform (P)	75-25-2	7.0	120	MCL. 10 ⁻⁶	
Utah			4.3	140	10 ⁻⁶	Update to USEPA
USEPA	Butylbenzyl Phthalate (P)	85-68-7	0.10	0.10		
Utah			1,500	1,900		Update to USEPA
USEPA	Cadmium (P)	7440439	—	—	MCL	
Utah			10	0.25	Class 1C Classes 3A-D waters	No action on criteria. No current USEPA criteria, delete from Table 2.14.6

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Source	Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
USEPA	Carbon Tetrachloride (P)	56-23-5	0.4	5	MCL 10 ⁻⁶	
Utah			0.23	1.6	10 ⁻⁶	Update to USEPA
USEPA	Chlordane (P)	57-74-9	0.00031	0.00032	MCL 10 ⁻⁶	
Utah			0.0008	0.00081 0.0043	Aquatic Life Organoleptic MCL	Update to USEPA
USEPA	Chlorobenzene (P)	108-90-7	100	800		
Utah			100	1,600		Update to USEPA
USEPA	Chlorodibromomethane (P)	124-48-1	0.80	21	MCL 10 ⁻⁶	
Utah			0.4	13	10 ⁻⁶	Update to USEPA
USEPA	Chloroform (P)	67-66-3	60	2,000	MCL 10 ⁻⁶	
Utah			5.7	470		Update to USEPA
USEPA	Chlorophenoxy Herbicide (2,4-D)	94-75-7	1,300	12,000	MCL	
Utah			— 70	—	Drinking Water MCL	Update to USEPA
USEPA	Chlorophenoxy Herbicide (2,4,5-TP) [Silvex]	93-72-1	100	400		
Utah			— 10	—	Drinking Water MCL	Update to USEPA
USEPA	Chromium (III) (P)	16065831	—	—		
Utah			0.05	74	Class 1C Classes 3A-3D	No current criteria, remove from Table 2.14.6

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Source	Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
USEPA	Chromium (VI) (P)	18540299	—	—	MCL	
Utah			— 0.05	— 11	Class 1C Classes 3A-3D	No current criteria, remove from Table 2.14.6
USEPA	Chrysene (P)	218-01-9	0.12	0.13	10 ⁻⁶ MCL	
Utah			0.0038	0.018	10 ⁻⁶	Update to USEPA
USEPA	Copper (P)	7440508	1,300	—	10 ⁻⁶ Organoleptic MCL	
Utah			1,300	—		No action
USEPA	Cyanide (P)	57-12-5	4	400	MCL	
Utah			140	140		Update criterion for free cyanide to USEPA
				5.2	Aquatic Life (free cyanide)	
USEPA	Dibenzo(a,h)-anthracene (P)	53-70-3	0.00012	0.00013	10 ⁻⁶	
Utah			0.0038	0.018	10 ⁻⁶	Update to USEPA
USEPA	Dichlorobromomethane (P)	75-27-4	0.95	27	10 ⁻⁶ MCL	
Utah			0.55	17	10 ⁻⁶	Update to USEPA
USEPA	Dieldrin (P)	60-57-1	0.0000012	0.0000012	10 ⁻⁶	
Utah			0.000052	0.000054	10 ⁻⁶	Update to USEPA
USEPA	Diethyl Phthalate (P)	84-66-2	600	600		
Utah			17,000	44,000		Update to USEPA

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Source	Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
USEPA	Dimethyl Phthalate (P)	131-11-3	2,000	2,000		
Utah			270,000	1,100,000		Update to USEPA
USEPA	Di-n-Butyl Phthalate (P)	84-74-2	20	30		
Utah			2000	4500		Update to USEPA
USEPA	Dinitrophenols	25550-58-7	10	1,000		
Utah			— 69	— 5,300	2,4-Dinitrophenol	Update to USEPA, delete 2,4-Dinitrophenol
USEPA	Endosulfan Sulfate (P)	1031-07-8	20	40		
Utah			62	89		Update to USEPA
USEPA	Endrin (P)	72-20-8	0.03	0.03	MCL	
Utah			0.059	0.060		Update to USEPA
USEPA	Endrin Aldehyde (P)	7421-93-4	1	1		
Utah			0.29	0.3		Update to USEPA
USEPA	Ethylbenzene (P)	100-41-4	68	130	MCL	
Utah			530	2100		Update to USEPA
USEPA	Fluoranthene (P)	206-44-0	20	20		
Utah			130	140		Update to USEPA
USEPA	Fluorene (P)	86-73-7	50	70		
Utah			1100	5,300		Update to USEPA
USEPA	gamma-Hexachlorocycl o-hexane (HCH) [Lindane] (P)	58-89-9	4.2	4.4	MCL	
Utah			0.2	1.8	MCL	Update to USEPA
USEPA	Heptachlor (P)	76-44-8	0.0000059	0.0000059	10 ⁻⁶ MCL	
Utah			0.000079	0.000079	10 ⁻⁶	Update to USEPA

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USEPA	Heptachlor Epoxide (P)	1024-57-3	0.000032	0.000032	10 ⁻⁶ MCL	
Utah			0.000039	0.000039	10 ⁻⁶	Update to USEPA
USEPA	Hexachlorobenzene (P)	118-74-1	0.000079	0.000079	10 ⁻⁶ MCL	
Utah			0.00028	0.00029	10 ⁻⁶	Update to USEPA
USEPA	Hexachlorobutadiene (P)	87-68-3	0.01	0.01	10 ⁻⁶ MCL	
Utah			0.44	18	10 ⁻⁶	Update to USEPA
USEPA	Hexachlorocyclo-hexane (HCH) -Technical	608-73-1	0.0066	0.010		
Utah			—	—		Update to USEPA
USEPA	Hexachlorocyclo-pentadiene (P)	77-47-4	4	4	Aquatic Life Organoleptic MCL	
Utah			40	1100		Update to USEPA
USEPA	Hexachloroethane (P)	67-72-1	0.1	0.1	10 ⁻⁶	
Utah			1.4	3.3	10 ⁻⁶	Update to USEPA
USEPA	Indeno(1,2,3-cd)pyrene (P)	193-39-5	0.0012	0.0013	10 ⁻⁶	
Utah			0.0038	0.018	10 ⁻⁶	Update to USEPA
USEPA	Isophorone (P)	78-59-1	34	1,800	10 ⁻⁶	

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Source	Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
Utah			35	960	10 ⁻⁶	Update to USEPA
USEPA	Manganese	7439965	50	100	Organoleptic, laundry staining	
Utah			—	—		No action
USEPA	Methylmercury (P)	22967926	—	0.3 mg/kg	Tissue-based	
Utah	Mercury		0.012	0.12	References Aquatic Life	No action at this time. No evidence that existing criteria are not protective of tissue-based criteria and implementation methods for implementation of tissue-based criteria need to be developed.
USEPA	Methoxychlor	72-43-5	0.02	0.02	MCL	
Utah			—	—		Update to USEPA
			40	0.03	Class 1C Classes 3A-D waters	
USEPA	Methyl Bromide (P)	74-83-9	100	10,000		
Utah			47	1500	10 ⁻⁶	Update to USEPA
USEPA	Methylene Chloride (P)	75-09-2	20	1,000	MCL	
Utah			4.6	590	10 ⁻⁶	Update to USEPA
USEPA	Nickel (P)	7440020	610	4,600	MCL	
Utah			100	4,600	100 is based on MCL, Classes 3A-3D	Update to USEPA, no current MCL
				52		

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Source	Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
USEPA	Nitrates	14797558	10,000	—	MCL	
Utah			— 10,000	— 4,000	Class 1C Classes 3A-3D Indicator	No action, existing 10,000 criterion for Class 1C sufficiently protective
USEPA	Nitrobenzene (P)	98-95-3	10	600	organoleptic	
Utah			17	690		Update to USEPA
USEPA	Nitrosamines	—	0.0008	1.24		
Utah			—	—		Update to USEPA
USEPA	Nitrosodibutylamine	924163	0.0063	0.22	10 ⁻⁶	
Utah			—	—		Update to USEPA
USEPA	Nitrosodiethylamine	55-18-5	0.0008	1.24	10 ⁻⁶	
Utah			—	—		Update to USEPA
USEPA	Nitrosopyrrolidine	930552	0.016	34	10 ⁻⁶	
Utah			—	—		Update to USEPA
USEPA	N-Nitrosodimethyl-amine (P)	62759	0.00069	3.0	10 ⁻⁶	
Utah			0.00069	3.0	10 ⁻⁶	No action
USEPA	N-Nitrosodi-n-Propylamine (P)	621647	0.0050	0.51	10 ⁻⁶	
Utah			0.005	0.51	10 ⁻⁶	No action
USEPA	N-Nitrosodiphenylamine (P)	86306	3.3	6.0	10 ⁻⁶	
Utah			3.3	6.0	10 ⁻⁶	No action

Table 1
Comparison of 2017 USEPA Water Quality Criteria for Protection of Human Health with
Utah Criteria in Table 2.14.6, UAC R317-2-14

Source	Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
USEPA	Pentachlorobenzene	608-93-5	0.1	0.1		
Utah			—	—		Update to USEPA
USEPA	Pentachlorophenol (P)	87-86-5	0.03	0.04	10 ⁻⁶ Organoleptic. MCL	
Utah			0.27	3.0		Update to USEPA
USEPA	Phenol (P)	108-95-2	4,000	300,000	Classes 3A-D. Organoleptic	
Utah			10,000	860,000		Update to USEPA
USEPA	Polychlorinated Biphenyls (PCBs) (P)		0.000064	0.000064	10 ⁻⁶ MCL	
Utah			0.000064	0.000064	10 ⁻⁶	No action
USEPA	Pyrene (P)	129-00-0	20	30		
Utah			830	4,000		Update to USEPA
USEPA	Selenium (P)	7782-49-2	170	4200	MCL	
Utah			4.6	4,200	4.6 references Class 3, Class 1C	Update to USEPA
USEPA	Tetrachloroethylene (P)	127-18-4	50	29	10 ⁻⁶ MCL	
Utah			0.69	3.3	10 ⁻⁶	Update to USEPA
USEPA	Thallium (P)	7440-28-0	0.24	0.47		
Utah			0.24	0.47		No action
USEPA	Toluene (P)	108-88-3	57	520	MCL	
Utah			1,000	15,000		Update to USEPA

Table 1
Comparison of 2017 USEPA Water Quality Criteria for Protection of Human Health with
Utah Criteria in Table 2.14.6, UAC R317-2-14

Source	Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
USEPA	Toxaphene (P)	8001-35-2	0.00070	0.00071	10 ⁻⁶ MCL	
Utah			0.00028	0.00028	10 ⁻⁶ Classes 3A-D	Update to USEPA
USEPA	Trichloroethylene (P)	79-01-6	0.6	7	10 ⁻⁶ MCL	
Utah			2.5	30	10 ⁻⁶ Classes 3A-D	Update to USEPA
USEPA	Vinyl Chloride (P)	75-01-4	0.022	1.6	10 ⁻⁶ risk MCL	
Utah			0.025	2.4		Update to USEPA
USEPA	Zinc (P)	7440-66-6	7,400	26,000	Organoleptic.	
Utah			7,400	26,000		No action
				120	Classes 3A-D	
USEPA	1,1,1-Trichloroethane (P)	71-55-6	10,000	200,000	MCL	
Utah			200	F	MCL for 200, F undefined	Update to USEPA, add MCL to Class 1C
USEPA	1,1,2,2-Tetrachloroethane (P)	79-34-5	0.2	3	10 ⁻⁶	
Utah			0.17	4.0		Update to USEPA
USEPA	1,1,2-Trichloroethane (P)	79-00-5	0.55	8.9	10 ⁻⁶	
Utah			0.59	16	MCL 10 ⁻⁶	Update to USEPA
USEPA	1,1-Dichloroethylene (P)	75-35-4	300	20,000	MCL	

Table 1
Comparison of 2017 USEPA Water Quality Criteria for Protection of Human Health with
Utah Criteria in Table 2.14.6, UAC R317-2-14

Source	Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
Utah			7	7,100	7 based on MCL	Update to USEPA, add MCL to Class 1C
USEPA	1,2,4,5-Tetrachlorobenzene	95-94-3	0.03	0.03		
Utah			—	—		No action
USEPA	1,2,4-Trichlorobenzene (P)	120-82-1	0.071	0.076	MCL	
Utah			35	70		Update to USEPA
USEPA	1,2-Dichlorobenzene (P)	95-50-1	1,000	3,000	MCL	
Utah			420	1,300		Update to USEPA
USEPA	1,2-Dichloroethane (P)	107-06-2	9.9	650	MCL	
Utah			0.38	37	10 ⁻⁶	Update to USEPA
USEPA	1,2-Dichloropropane (P)	78-87-5	0.90	31	10 ⁻⁶ MCL	
Utah			0.50	15	10 ⁻⁶	Update to USEPA
USEPA	1,2-Diphenylhydrazine (P)	122-66-7	0.03	0.2	10 ⁻⁶ risk	
Utah			0.036	0.20	10 ⁻⁶	No action
USEPA	Trans-1,2-Dichloroethylene (P)	156-60-5	100	4,000	MCL	
Utah			100	10,000	100 based on MCL	Update to USEPA for organism only criterion
USEPA	1,3-Dichlorobenzene (P)	541-73-1	7	10		
Utah			320	960		Update to USEPA

Table 1
Comparison of 2017 USEPA Water Quality Criteria for Protection of Human Health with
Utah Criteria in Table 2.14.6, UAC R317-2-14

Source	Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
USEPA	1,3-Dichloropropene (P)	542-75-6	0.27	12	10 ⁻⁶ risk	
Utah			0.34	21		Update to USEPA
USEPA	1,4-Dichlorobenzene (P)	106-46-7	300	900	MCL	
Utah			63	190		Update to USEPA
USEPA	2,3,7,8-TCDD (Dioxin) (P)	1746016	5.0E-9	5.1E-9	10 ⁻⁶ MCL	
Utah			5.0E-9	5.1E-9	10 ⁻⁶	No action
USEPA	2,4,5-Trichlorophenol	95-95-4	300	600	Organoleptic.	
Utah			—	—		Update to USEPA
USEPA	2,4,6-Trichlorophenol (P)	88-06-2	1.5	2.8	10 ⁻⁶ risk Organoleptic.	
Utah			1.4	2.4	10 ⁻⁶	Update to USEPA
USEPA	2,4-Dichlorophenol (P)	120-83-2	10	60	Organoleptic	
Utah			77	290		Update to USEPA
USEPA	2,4-Dimethylphenol (P)	105-67-9	100	3,000	Organoleptic	
Utah			380	850		Update to USEPA
USEPA	2,4-Dinitrophenol (P)	51-28-5	10	300		
Utah			69	5,300		Update to USEPA
USEPA	2,4-Dinitrotoluene (P)	121-14-2	0.049	1.7	10 ⁻⁶	
Utah			0.11	3.4	10 ⁻⁶	Update to USEPA
USEPA	2-Chloronaphthalene (P)	91-58-7	800	1,000		
Utah			1,000	1,600		Update to USEPA
USEPA	2-Chlorophenol (P)	95-57-8	30	800	Organoleptic	
Utah			81	150		Update to USEPA

Table 1
Comparison of 2017 USEPA Water Quality Criteria for Protection of Human Health with
Utah Criteria in Table 2.14.6, UAC R317-2-14

Source	Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
USEPA	2-Methyl-4,6-Dinitrophenol (P)	534-52-1	2	30		
Utah			13.0	280		Update to USEPA
USEPA	3,3'-Dichlorobenzidine (P)	91-94-1	0.049	0.15	10 ⁻⁶	
Utah			0.021	0.028	10 ⁻⁶	Update to USEPA
USEPA	3-Methyl-4-Chlorophenol (P)	59-50-7	500	2,000	Organoleptic	
Utah			—	—		Update to USEPA
USEPA	p,p'-Dichlorodiphenyldichloroethane (DDD) (P)	72-54-8	0.00012	0.00012	10 ⁻⁶	
Utah			0.00031	0.00031	10 ⁻⁶	Update to USEPA
USEPA	p,p'-Dichlorodiphenyldichloroethylene (DDE) (P)	72-55-9	0.000018	0.000018	10 ⁻⁶	
Utah			0.00022	0.00022	10 ⁻⁶	Update to USEPA
USEPA	p,p'-Dichlorodiphenyltrichloroethane (DDT) (P)	50-29-3	0.000030	0.000030	10 ⁻⁶	
Utah			0.00022	0.00022	10 ⁻⁶	Update to USEPA

Table 1
Comparison of 2017 USEPA Water Quality Criteria for Protection of Human Health with
Utah Criteria in Table 2.14.6, UAC R317-2-14

Source	Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
Table Notes	USEPA (P) 10 ⁻⁶ Organoleptic MCL Red font Black font Green font Classes 3A-D Criteria		United States Environmental Protection Agency Priority Pollutant This criterion is based on carcinogenicity of 10 ⁻⁶ risk. The criterion for organoleptic (taste and odor) effects may be more stringent. USEPA has issued a Maximum Contaminant Level (MCL) for this chemical which may be more stringent. Utah human health criterion that is less stringent than USEPA criterion Utah human health criterion is the same as USEPA (2015) criterion Utah human health criterion that is more stringent than USEPA criterion Some Class 3 criteria are hardness or pH-dependent. Values presented are from Table 2.14.2 in UAC R317-2-14			

Table 2
Pollutants Listed in Utah Table 2.14.6, UAC R317-2-14 Not Included in
USEPA (2017) Water Quality Criteria for the Protection of Human Health

Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
Lead				No criteria listed	Delete, Class 1C criterion = 15 µg/L adequately protective
Mercury				References criteria in aquatic life table	Leave until 0.3 mg/kg methylmercury criterion is adopted
Acenaphthylene	208-96-8			Polycyclic aromatic hydrocarbon, toxic pollutant.	No USEPA or Utah criteria, delete
Alachlor	15972-60-8	2.0		Herbicide, no USEPA water quality criteria, MCL = 2 µg/L	Add MCL to Class 1C criteria in Table 2.14.1
Atrazine	1912-24-9	3.0		Herbicide, no USEPA water quality criteria, MCL = 3 µg/L	Move to Class 1C criteria in Table 2.14.1
Benzo(g,h,i)perylene	191-24-2			Polycyclic aromatic hydrocarbon, toxic pollutant	No USEPA or Utah criteria, delete
Bis(2-chloroethoxy)methane	111-91-1			Solvent, chemical intermediate for food packaging coating	No USEPA or Utah criteria, delete
Carbofuran	1563-66-2	40		Carbamate pesticide, Hazardous Substance, no USEPA water quality criteria, MCL = 40 µg/L	Move to Class 1C criteria in Table 2.14.1
Chloroethane	75-00-3			No criteria listed in Utah table, no USEPA water quality criteria, Hazardous Substance	Delete
2-Chloroethylvinyl Ether	110-75-8			No criteria listed in Utah table, no USEPA water quality criteria, no MCL	Delete

Table 2
Pollutants Listed in Utah Table 2.14.6, UAC R317-2-14 Not Included in
USEPA (2017) Water Quality Criteria for the Protection of Human Health

Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
Dalapon	75-99-0	200		Banned herbicide, no USEPA water quality criteria, Hazardous Substance, MCL = 200 µg/L	Move to Class 1C criteria in Table 2.14.1
delta-BHC	319-86-8			Lindane isomers from pesticides	No USEPA or Utah criteria, delete
Di(2ethylhexyl)adipate	103-23-1	400		Plasticizer, no USEPA water quality criteria, MCL = 400 µg/L	Move to Class 1C criteria in Table 2.14.1
Dibromochloropropane	96-12-8	0.2		Banned pesticide except Hawaii, no USEPA water quality criteria, MCL = 0.2 µg/L	Move to Class 1C criteria in Table 2.14.1
1,1-Dichloroethane	75-34-3			Grain fumigant and chemical intermediate. No criteria listed in Table 2.14.6, no USEPA water quality criteria, no MCL.	No Utah or USEPA criteria. Delete from Table
2,6-Dinitrotoluene	606-20-2			Chemical intermediate, hazardous substance.	No Utah or USEPA criteria. Delete from Table.
Dinoseb	88-85-7	7.0		Pre-emergent herbicide, miticide, no USEPA water quality criteria, MCL = 7.0 µg/L	Move to Class 1C criteria in Table 2.14.1
Diquat	85-00-7	20		Herbicide, algaecide, no USEPA water quality criteria, MCL = 20 µg/L	Move to Class 1C criteria in Table 2.14.1

Table 2
Pollutants Listed in Utah Table 2.14.6, UAC R317-2-14 Not Included in
USEPA (2017) Water Quality Criteria for the Protection of Human Health

Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
Endothall	145-73-3	100		Herbicide, algaecide, no USEPA water quality criteria, MCL = 100 µg/L	Move to Class 1C criteria in Table 2.14.1
Ethylene Dibromide	106-93-4	0.05		Banned fumigant, no USEPA water quality criteria, MCL = 0.05 µg/L	Move to Class 1C criteria in Table 2.14.1
Glyphosate	1071-83-6	700		Herbicide, MCL = 700 µg/L	Move to Class 1C criteria in Table 2.14.1
Haloacetic acids		60		No footnote E in Utah table, byproduct of drinking water disinfection, no USEPA water quality criteria, MCL = 60 µg/L	Delete. Class 1C is for potable water prior to treatment and haloacetic acids are disinfection byproducts from treatment.
Methyl Chloride	74-87-3			No footnote F in Utah table, Chemical intermediate, toxic pollutant, MCL = 3 µg/L	Move to Class 1C criteria in Table 2.14.1
2-Nitrophenol	88-75-5			Chemical intermediate, toxic pollutant.	No Utah or USEPA criteria. Delete from Table.
4-Nitrophenol				Chemical intermediate, hazardous substance	No Utah or USEPA criteria. Delete from Table.
Napthalene	91-20-3			Polycyclic aromatic hydrocarbon, toxic pollutant	No Utah or USEPA criteria. Delete from Table.
Ocamyl (vidate)	23135-22-0	400		Carbamate pesticide, see oxamyl or vydate, no USEPA water quality criteria, MCL = 400 µg/L.	Move to Class 1C criteria in Table 2.14.1

Table 2
Pollutants Listed in Utah Table 2.14.6, UAC R317-2-14 Not Included in
USEPA (2017) Water Quality Criteria for the Protection of Human Health

Pollutant	CAS Number	Human Health for the consumption of Water + Organism (µg/L)	Human Health for the consumption of Organism Only (µg/L)	Notes	DWQ Recommendation
Phenanthrene	85-01-8			Polycyclic aromatic hydrocarbon, toxic pollutant	No Utah or USEPA criteria. Delete from Table.
Picloram	1918-02-1	500		Herbicide, no USEPA water quality criteria, MCL = 500 µg/L	Move to Class 1C criteria in Table 2.14.1
Simazine	122-34-9	4		Herbicide, no USEPA water quality criteria, MCL = 4 µg/L	Move to Class 1C criteria in Table 2.14.1
Styrene	100-42-5	100		Manufacturing plastics, Hazardous Substance, MCL = 100 µg/L	Move to Class 1C criteria in Table 2.14.1

Attachment 1
Utah Water Quality Standards Workgroup 7/17/17
Redline/Strikeout of Proposed Revisions R317-2

R317-2. Standards of Quality for Waters of the State.

R317-2-1A. Statement of Intent.

Whereas the pollution of the waters of this state constitute a menace to public health and welfare, creates public nuisances, is harmful to wildlife, fish and aquatic life, and impairs domestic, agricultural, industrial, recreational and other legitimate beneficial uses of water, and whereas such pollution is contrary to the best interests of the state and its policy for the conservation of the water resources of the state, it is hereby declared to be the public policy of this state to conserve the waters of the state and to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and aquatic life, and for domestic, agricultural, industrial, recreational and other legitimate beneficial uses; to provide that no waste be discharged into any waters of the state without first being given the degree of treatment necessary to protect the legitimate beneficial uses of such waters; to provide for the prevention, abatement and control of new or existing water pollution; to place first in priority those control measures directed toward elimination of pollution which creates hazards to the public health; to insure due consideration of financial problems imposed on water polluters through pursuit of these objectives; and to cooperate with other agencies of the state, agencies of other states and the federal government in carrying out these objectives.

R317-2-1B. Authority.

These standards are promulgated pursuant to Sections 19-5-104 and 19-5-110.

R317-2-1C. Triennial Review.

The water quality standards shall be reviewed and updated, if necessary, at least once every three years. The Director will seek input through a cooperative process from stakeholders representing state and federal agencies, various interest groups, and the public to develop a preliminary draft of changes. Proposed changes will be presented to the Water Quality Board for information. Informal public meetings may be held to present preliminary proposed changes to the public for comments and suggestions. Final proposed changes will be presented to the Water Quality Board for approval and authorization to initiate formal rulemaking. Public hearings will be held to solicit formal comments from the public. The Director will incorporate appropriate changes and return to the Water Quality Board to petition for formal adoption of the proposed changes following the requirements of the Utah Rulemaking Act, Title 63G, Chapter 3.

R317-2-2. Scope.

These standards shall apply to all waters of the state and shall be assigned to specific waters through the classification procedures prescribed by Sections 19-5-104(5) and 19-5-110 and R317-2-6.

R317-2-3. Antidegradation Policy.

3.1 Maintenance of Water Quality

Waters whose existing quality is better than the established standards for the designated uses will be maintained at high quality unless it is determined by the Director, after appropriate intergovernmental coordination and public participation in concert with the Utah continuing planning process, allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. However, existing instream water uses shall be maintained and protected. No water quality degradation is allowable which would interfere with or become injurious to existing instream water uses.

In those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with Section 316 of the Federal Clean Water Act.

3.2 Category 1 Waters

Waters which have been determined by the Board to be of exceptional recreational or ecological significance or have been determined to be a State or National resource requiring protection, shall be maintained at existing high quality through designation, by the Board after public hearing, as Category 1 Waters. New point source discharges of wastewater, treated or otherwise, are prohibited in such segments after the effective date of designation. Protection of such segments from pathogens in diffuse, underground sources is covered in R317-5 and R317-7 and the rules for Individual Wastewater Disposal Systems (R317-501 through R317-515). Other diffuse sources (nonpoint sources) of wastes shall be controlled to the extent feasible through implementation of best management practices or regulatory programs.

Discharges may be allowed where pollution will be temporary and limited after consideration of the factors in R317-2-3.5.b.4., and where best management practices will be employed to minimize pollution effects.

Waters of the state designated as Category 1 Waters are listed in R317-2-12.1.

3.3 Category 2 Waters

Category 2 Waters are designated surface water segments which are treated as Category 1 Waters except that a point source discharge may be permitted provided that the discharge does not degrade existing water quality. Discharges may be allowed where pollution will be temporary and limited after consideration of the factors in R317-2-3.5.b.4., and where best management practices will be employed to minimize pollution effects. Waters of the state designated as Category 2 Waters are listed in R317-2-12.2.

3.4 Category 3 Waters

For all other waters of the state, point source discharges are allowed and degradation may occur, pursuant to the conditions and review procedures outlined in Section 3.5.

3.5 Antidegradation Review (ADR)

An antidegradation review will determine whether the proposed activity complies with the applicable antidegradation requirements for receiving waters that may be affected.

An antidegradation review (ADR) may consist of two parts or levels. A Level I review is conducted to insure that existing uses will be maintained and protected.

Both Level I and Level II reviews will be conducted on a parameter-by-parameter basis. A decision to move to a Level II review for one parameter does not require a Level II review for other parameters. Discussion of parameters of concern is those expected to be affected by the proposed activity.

Antidegradation reviews shall include opportunities for public participation, as described in Section 3.5e.

a. Activities Subject to Antidegradation Review (ADR)

1. For all State waters, antidegradation reviews will be conducted for proposed federally regulated activities, such as those under Clean Water Act Sections 401 (FERC and other Federal actions), 402 (UPDES permits), and 404 (Army Corps of Engineers permits). The Director may conduct an ADR on any projects with the potential for major impact on the quality of waters of the state. The review will determine whether the proposed activity complies with the applicable antidegradation requirements for the particular receiving waters that may be affected.

2. For Category 1 Waters and Category 2 Waters, reviews shall be consistent with the requirement established in Sections 3.2 and 3.3, respectively.

3. For Category 3 Waters, reviews shall be consistent with the requirements established in this section

b. An Anti-degradation Level II review is not required where any of the following conditions apply:

1. Water quality will not be lowered by the proposed activity or for existing permitted facilities, water quality will not be further lowered by the proposed activity, examples include situations where:

(a) the proposed concentration-based effluent limit is less than or equal to the ambient concentration in the receiving water during critical conditions; or

(b) a UPDES permit is being renewed and the proposed effluent concentration and loading limits are equal to or less than the concentration and loading limits in the previous permit; or

(c) a UPDES permit is being renewed and new effluent limits are to be added to the permit, but the new effluent limits are based on maintaining or improving upon effluent concentrations and loads that have been observed, including variability; or

2. Assimilative capacity (based upon concentration) is not available or has previously been allocated, as indicated by water quality monitoring or modeling information. This includes situations

where:

(a) the water body is included on the current 303(d) list for the parameter of concern; or

(b) existing water quality for the parameter of concern does not satisfy applicable numeric or narrative water quality criteria; or

(c) discharge limits are established in an approved TMDL that is consistent with the current water quality standards for the receiving water (i.e., where TMDLs are established, and changes in effluent limits that are consistent with the existing load allocation would not trigger an antidegradation review).

Under conditions (a) or (b) the effluent limit in an UPDES permit may be equal to the water quality numeric criterion for the parameter of concern.

3. Water quality impacts will be temporary and related only to sediment or turbidity and fish spawning will not be impaired,

4. The water quality effects of the proposed activity are expected to be temporary and limited. As general guidance, CWA Section 402 general discharge permits, CWA Section 404 general permits, or activities of short duration, will be deemed to have a temporary and limited effect on water quality where there is a reasonable factual basis to support such a conclusion. Factors to be considered in determining whether water quality effects will be temporary and limited may include the following:

(a) Length of time during which water quality will be lowered.

(b) Percent change in ambient concentrations of pollutants of concern

(c) Pollutants affected

(d) Likelihood for long-term water quality benefits to the segment (e.g., dredging of contaminated sediments)

(e) Potential for any residual long-term influences on existing uses.

(f) Impairment of the fish spawning, survival and development of aquatic fauna excluding fish removal efforts.

c. Anti-degradation Review Process

For all activities requiring a Level II review, the Division will notify affected agencies and the public with regards to the requested proposed activity and discussions with stakeholders may be held. In the case of Section 402 discharge permits, if it is determined that a discharge will be allowed, the Director will develop any needed UPDES permits for public notice following the normal permit issuance process.

The ADR will cover the following requirements or determinations:

1. Will all Statutory and regulatory requirements be met?

The Director will review to determine that there will be achieved all statutory and regulatory requirements for all new and existing point sources and all required cost-effective and reasonable best management practices for nonpoint source control in the area of the discharge. If point sources exist in the area that have not achieved all statutory and regulatory requirements, the Director will consider

whether schedules of compliance or other plans have been established when evaluating whether compliance has been assured. Generally, the "area of the discharge" will be determined based on the parameters of concern associated with the proposed activity and the portion of the receiving water that would be affected.

2. Are there any reasonable less-degrading alternatives?

There will be an evaluation of whether there are any reasonable non-degrading or less degrading alternatives for the proposed activity. This question will be addressed by the Division based on information provided by the project proponent. Control alternatives for a proposed activity will be evaluated in an effort to avoid or minimize degradation of the receiving water. Alternatives to be considered, evaluated, and implemented to the extent feasible, could include pollutant trading, water conservation, water recycling and reuse, land application, total containment, etc.

For proposed UPDES permitted discharges, the following list of alternatives should be considered, evaluated and implemented to the extent feasible:

- (a) innovative or alternative treatment options
- (b) more effective treatment options or higher treatment levels
- (c) connection to other wastewater treatment facilities
- (d) process changes or product or raw material substitution
- (e) seasonal or controlled discharge options to minimize discharging during critical water quality periods
- (f) pollutant trading
- (g) water conservation
- (h) water recycle and reuse
- (i) alternative discharge locations or alternative receiving waters
- (j) land application
- (k) total containment
- (l) improved operation and maintenance of existing treatment systems
- (m) other appropriate alternatives

An option more costly than the cheapest alternative may have to be implemented if a substantial benefit to the stream can be realized. Alternatives would generally be considered feasible where costs are no more than 20% higher than the cost of the discharging alternative, and (for POTWs) where the projected per connection service fees are not greater than 1.4% of MAGHI (median adjusted gross household income), the current affordability criterion now being used by the Water Quality Board in the wastewater revolving loan program.

Alternatives within these cost ranges should be carefully considered by the discharger. Where State financing is appropriate, a financial assistance package may be influenced by this evaluation, i.e., a less polluting alternative may receive a more favorable funding arrangement in order to make it a more financially attractive alternative.

It must also be recognized in relationship to evaluating options that would avoid or reduce discharges to the stream, that in some situations it may be more beneficial to leave the water in the stream

for instream flow purposes than to remove the discharge to the stream.

3. Does the proposed activity have economic and social importance?

Although it is recognized that any activity resulting in a discharge to surface waters will have positive and negative aspects, information must be submitted by the applicant that any discharge or increased discharge will be of economic or social importance in the area.

The factors addressed in such a demonstration may include, but are not limited to, the following:

(a) employment (i.e., increasing, maintaining, or avoiding a reduction in employment);

(b) increased production;

(c) improved community tax base;

(d) housing;

(e) correction of an environmental or public health problem; and

(f) other information that may be necessary to determine the social and economic importance of the proposed surface water discharge.

4. The applicant may submit a proposal to mitigate any adverse environmental effects of the proposed activity (e.g., instream habitat improvement, bank stabilization). Such mitigation plans should describe the proposed mitigation measures and the costs of such mitigation. Mitigation plans will not have any effect on effluent limits or conditions included in a permit (except possibly where a previously completed mitigation project has resulted in an improvement in background water quality that affects a water quality-based limit).

Such mitigation plans will be developed and implemented by the applicant as a means to further minimize the environmental effects of the proposed activity and to increase its socio-economic importance. An effective mitigation plan may, in some cases, allow the Director to authorize proposed activities that would otherwise not be authorized.

5. Will water quality standards be violated by the discharge?

Proposed activities that will affect the quality of waters of the state will be allowed only where the proposed activity will not violate water quality standards.

6. Will existing uses be maintained and protected?

Proposed activities can only be allowed if "existing uses" will be maintained and protected. No UPDES permit will be allowed which will permit numeric water quality standards to be exceeded in a receiving water outside the mixing zone. In the case of nonpoint pollution sources, the non-regulatory Section 319 program now in place will address these sources through application of best management practices to ensure that numeric water quality standards are not exceeded.

7. If a situation is found where there is an existing use which is a higher use (i.e., more stringent protection requirements) than that current designated use, the Director will apply the water quality

standards and anti-degradation policy to protect the existing use. Narrative criteria may be used as a basis to protect existing uses for parameters where numeric criteria have not been adopted. Procedures to change the stream use designation to recognize the existing use as the designated use would be initiated.

d. Special Procedures for Drinking Water Sources

An Antidegradation Level II Review will be required by the Director for discharges to waters with a Class 1C drinking water use assigned.

Depending upon the locations of the discharge and its proximity to downstream drinking water diversions, additional treatment or more stringent effluent limits or additional monitoring, beyond that which may otherwise be required to meet minimum technology standards or in stream water quality standards, may be required by the Director in order to adequately protect public health and the environment. Such additional treatment may include additional disinfection, suspended solids removal to make the disinfection process more effective, removal of any specific contaminants for which drinking water maximum contaminant levels (MCLs) exists, and/or nutrient removal to reduce the organic content of raw water used as a source for domestic water systems.

Additional monitoring may include analyses for viruses, Giardia, Cryptosporidium, other pathogenic organisms, and/or any contaminant for which drinking water MCLs exist. Depending on the results of such monitoring, more stringent treatment may then be required.

The additional treatment/effluent limits/monitoring which may be required will be determined by the Director after consultation with the Division of Drinking Water and the downstream drinking water users.

e. Public Notice

The public will be provided notice and an opportunity to comment on the conclusions of all completed antidegradation reviews. When possible, public notice on the antidegradation review conclusions will be combined with the public notice on the proposed permitting or certifying action. In the case of UPDES permits, public notice will be provided through the normal permitting process, as all draft permits are public noticed for 30 days, and public comment solicited, before being issued as a final permit. The Statement of Basis for the draft UPDES permit will contain information on how the ADR was addressed including results of the Level I and Level II reviews. In the case of Section 404 permits from the Corps of Engineers, the Division of Water Quality will develop any needed 401 Certifications and the public notice may be published in conjunction with the US Corps of Engineers public notice procedures. Other permits requiring a Level II review will receive a separate public notice according to the normal State public notice procedures. The public will be provided notice and an opportunity to comment whenever substantive changes are made to the implementation procedures referenced in R317-2-3.5.f.

f. Implementation Procedures

The Director shall establish reasonable protocols and guidelines (1) for completing technical, social, and economic need demonstrations, (2) for review and determination of adequacy of Level II ADRs and (3) for determination of additional treatment requirements. Protocols and guidelines will consider federal guidance and will include input from local governments, the regulated community, and the general public. The Director will inform the Water Quality Board of any protocols or guidelines that are developed.

R317-2-4. Colorado River Salinity Standards.

In addition to quality protection afforded by these rules to waters of the Colorado River and its tributaries, such waters shall be protected also by requirements of "Proposed Water Quality Standards for Salinity including Numeric Criteria and Plan of Implementation for Salinity Control, Colorado River System, June 1975" and a supplement dated August 26, 1975, entitled "Supplement, including Modifications to Proposed Water Quality Standards for Salinity including Numeric Criteria and Plan of Implementation for Salinity Control, Colorado River System, June 1975", as approved by the seven Colorado River Basin States and the U.S. Environmental Protection Agency, as updated by the 1978 Revision and the 1981, 1984, 1987, 1990, 1993, 1996, 1999, 2002, 2005, 2008, and 2011 reviews of the above documents.

R317-2-5. Mixing Zones.

A mixing zone is a limited portion of a body of water, contiguous to a discharge, where dilution is in progress but has not yet resulted in concentrations which will meet certain standards for all pollutants. At no time, however, shall concentrations within the mixing zone be allowed which are acutely lethal as determined by bioassay or other approved procedure. Mixing zones may be delineated for the purpose of guiding sample collection procedures and to determine permitted effluent limits. The size of the chronic mixing zone in rivers and streams shall not to exceed 2500 feet and the size of an acute mixing zone shall not exceed 50% of stream width nor have a residency time of greater than 15 minutes. Streams with a flow equal to or less than twice the flow of a point source discharge may be considered to be totally mixed. The size of the chronic mixing zone in lakes and reservoirs shall not exceed 200 feet and the size of an acute mixing zone shall not exceed 35 feet. Domestic wastewater effluents discharged to mixing zones shall meet effluent requirements specified in R317-1-3.

5.1 Individual Mixing Zones. Individual mixing zones may be further limited or disallowed in consideration of the following factors in the area affected by the discharge:

- a. Bioaccumulation in fish tissues or wildlife,
- b. Biologically important areas such as fish spawning/nursery areas or segments with occurrences of federally listed threatened or endangered species,
- c. Potential human exposure to pollutants resulting from

drinking water or recreational activities,

d. Attraction of aquatic life to the effluent plume, where toxicity to the aquatic life is occurring.

e. Toxicity of the substance discharged,

f. Zone of passage for migrating fish or other species (including access to tributaries), or

g. Accumulative effects of multiple discharges and mixing zones.

R317-2-6. Use Designations.

The Board as required by Section 19-5-110, shall group the waters of the state into classes so as to protect against controllable pollution the beneficial uses designated within each class as set forth below. Surface waters of the state are hereby classified as shown in R317-2-13.

6.1 Class 1 -- Protected for use as a raw water source for domestic water systems.

a. Class 1A -- Reserved.

b. Class 1B -- Reserved.

c. Class 1C -- Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water

6.2 Class 2 -- Protected for recreational use and aesthetics.

a. Class 2A -- Protected for frequent primary contact recreation where there is a high likelihood of ingestion of water or a high degree of bodily contact with the water. Examples include, but are not limited to, swimming, rafting, kayaking, diving, and water skiing.

b. Class 2B -- Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.

6.3 Class 3 -- Protected for use by aquatic wildlife.

a. Class 3A -- Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.

b. Class 3B -- Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.

c. Class 3C -- Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.

d. Class 3D -- Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.

e. Class 3E -- Severely habitat-limited waters. Narrative standards will be applied to protect these waters for aquatic wildlife.

6.4 Class 4 -- Protected for agricultural uses including irrigation of crops and stock watering.

6.5 Class 5 -- The Great Salt Lake.

a. Class 5A Gilbert Bay

Geographical Boundary -- All open waters at or below approximately 4,208-foot elevation south of the Union Pacific Causeway, excluding all of the Farmington Bay south of the Antelope Island Causeway and salt evaporation ponds.

Beneficial Uses -- Protected for frequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.

b. Class 5B Gunnison Bay

Geographical Boundary -- All open waters at or below approximately 4,208-foot elevation north of the Union Pacific Causeway and west of the Promontory Mountains, excluding salt evaporation ponds.

Beneficial Uses -- Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.

c. Class 5C Bear River Bay

Geographical Boundary -- All open waters at or below approximately 4,208-foot elevation north of the Union Pacific Causeway and east of the Promontory Mountains, excluding salt evaporation ponds.

Beneficial Uses -- Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.

d. Class 5D Farmington Bay

Geographical Boundary -- All open waters at or below approximately 4,208-foot elevation east of Antelope Island and south of the Antelope Island Causeway, excluding salt evaporation ponds.

Beneficial Uses -- Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.

e. Class 5E Transitional Waters along the Shoreline of the Great Salt Lake Geographical Boundary -- All waters below approximately 4,208-foot elevation to the current lake elevation of the open water of the Great Salt Lake receiving their source water from naturally occurring springs and streams, impounded wetlands, or facilities requiring a UPDES permit. The geographical areas of these transitional waters change corresponding to the fluctuation of open water elevation.

Beneficial Uses -- Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.

R317-2-7. Water Quality Standards.

7.1 Application of Standards

a. The numeric criteria listed in R317-2-14 shall apply to each of the classes assigned to waters of the State as specified in R317-2-6.

It shall be unlawful and a violation of these rules for any person to discharge or place any wastes or other substances in such manner as may interfere with designated uses protected by assigned classes or to cause any of the applicable standards to be violated, except

as provided in R317-1-3.1.

b. At a minimum, assessment of the beneficial use support for waters of the state will be conducted biennially and available for a 30-day period of public comment and review. Monitoring locations and target indicators of water quality standards shall be prioritized and published yearly. For water quality assessment purposes, up to 10 percent of the representative samples may exceed the minimum or maximum criteria for dissolved oxygen, pH, E. coli, total dissolved solids, and temperature, including situations where such criteria have been adopted on a site-specific basis.

c. Site-specific standards may be adopted by rulemaking where biomonitoring data, bioassays, or other scientific analyses indicate that the statewide criterion is over or under protective of the designated uses or where natural or un-alterable conditions or other factors as defined in 40 CFR 131.10(g) prevent the attainment of the statewide criteria as prescribed in Subsections R317-2-7.2, and R317-2-7.3, and Section R317-2-14.

7.2 Narrative Standards

It shall be unlawful, and a violation of these rules, for any person to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum or other nuisances such as color, odor or taste; or cause conditions which produce undesirable aquatic life or which produce objectionable tastes in edible aquatic organisms; or result in concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by bioassay or other tests performed in accordance with standard procedures; or determined by biological assessments in Subsection R317-2-7.3.

7.3 Biological Water Quality Assessment and Criteria

Waters of the State shall be free from human-induced stressors which will degrade the beneficial uses as prescribed by the biological assessment processes and biological criteria set forth below:

a. Quantitative biological assessments may be used to assess whether the purposes and designated uses identified in R317-2-6 are supported.

b. The results of the quantitative biological assessments may be used for purposes of water quality assessment, including, but not limited to, those assessments required by 303(d) and 305(b) of the federal Clean Water Act (33 U.S.C. 1313(d) and 1315(b)).

c. Quantitative biological assessments shall use documented methods that have been subject to technical review and produce consistent, objective and repeatable results that account for methodological uncertainty and natural environmental variability.

d. If biological assessments reveal a biologically degraded water body, specific pollutants responsible for the degradation will not be formally published (i.e., Biennial Integrated Report, TMDL) until a thorough evaluation of potential causes, including nonchemical stressors (e.g., habitat degradation or hydrological modification

or criteria described in 40 CFR 131.10 (g)(1 - 6) as defined by the Use Attainability Analysis process), has been conducted.

R317-2-8. Protection of Downstream Uses.

All actions to control waste discharges under these rules shall be modified as necessary to protect downstream designated uses.

R317-2-9. Intermittent Waters.

Failure of a stream to meet water quality standards when stream flow is either unusually high or less than the 7-day, 10-year minimum flow shall not be cause for action against persons discharging wastes which meet both the requirements of R317-1 and the requirements of applicable permits.

R317-2-10. Laboratory and Field Analyses.

10.1 Laboratory Analyses

All laboratory examinations of samples collected to determine compliance with these regulations shall be performed in accordance with standard procedures as approved by the Director by the Utah Office of State Health Laboratory or by a laboratory certified by the Utah Department of Health.

10.2 Field Analyses

All field analyses to determine compliance with these rules shall be conducted in accordance with standard procedures specified by the Utah Division of Water Quality.

R317-2-11. Public Participation.

Public notices and public hearings will be held for the consideration, adoption, or amendment of the classifications of waters and standards of purity and quality. Public notices shall be published at least twice in a newspaper of general circulation in the area affected at least 30 days prior to the public hearing(s). The notice will be posted on a State public notice website at least 45 days before the hearing(s) and a notice will be mailed at least 30 days before the hearing(s) to the chief executive of each political subdivision and other potentially affected persons.~~to review all proposed revisions of water quality standards, designations and classifications, and public meetings may be held for consideration of discharge requirements set to protect water uses under assigned classifications.~~

R317-2-12. Category 1 and Category 2 Waters.

12.1 Category 1 Waters.

In addition to assigned use classes, the following surface waters of the State are hereby designated as Category 1 Waters:

a. All surface waters geographically located within the outer boundaries of U.S. National Forests whether on public or private lands with the following exceptions:

1. Category 2 Waters as listed in R317-2-12.2.
2. Weber River, a tributary to the Great Salt Lake, in the Weber

River Drainage from Uintah to Mountain Green.

b. Other surface waters, which may include segments within U.S. National Forests as follows:

1. Colorado River Drainage

Calf Creek and tributaries, from confluence with Escalante River to headwaters.

Sand Creek and tributaries, from confluence with Escalante River to headwaters.

Mamie Creek and tributaries, from confluence with Escalante River to headwaters.

Deer Creek and tributaries, from confluence with Boulder Creek to headwaters (Garfield County).

Indian Creek and tributaries, through Newspaper Rock State Park to headwaters.

2. Green River Drainage

Price River (Lower Fish Creek from confluence with White River to Scofield Dam.

Range Creek and tributaries, from confluence with Green River to headwaters.

Strawberry River and tributaries, from confluence with Red Creek to headwaters.

Ashley Creek and tributaries, from Steinaker diversion to headwaters.

Jones Hole Creek and tributaries, from confluence with Green River to headwaters.

Green River, from state line to Flaming Gorge Dam.

Tollivers Creek, from confluence with Green River to headwaters.

Allen Creek, from confluence with Green River to headwaters.

3. Virgin River Drainage

North Fork Virgin River and tributaries, from confluence with East Fork Virgin River to headwaters.

East Fork Virgin River and tributaries from confluence with North Fork Virgin River to headwaters.

4. Kanab Creek Drainage

Kanab Creek and tributaries, from irrigation diversion at confluence with Reservoir Canyon to headwaters.

5. Bear River Drainage

Swan Creek and tributaries, from Bear Lake to headwaters.

North Eden Creek, from Upper North Eden Reservoir to headwaters.

Big Creek and tributaries, from Big Ditch diversion to headwaters.

Woodruff Creek and tributaries, from Woodruff diversion to headwaters.

6. Weber River Drainage

Burch Creek and tributaries, from Harrison Boulevard in Ogden to headwaters.

Hardscrabble Creek and tributaries, from confluence with East Canyon Creek to headwaters.

Chalk Creek and tributaries, from Main Street in Coalville to headwaters.

Weber River and tributaries, from Utah State Route 32 near Oakley to headwaters.

7. Jordan River Drainage

City Creek and tributaries, from City Creek Water Treatment Plant to headwaters (Salt Lake County).

Emigration Creek and tributaries, from Hogle Zoo to headwaters (Salt Lake County).

Red Butte Creek and tributaries, from Foothill Boulevard in Salt Lake City to headwaters.

Parley's Creek and tributaries, from 13th East in Salt Lake City to headwaters.

Mill Creek and tributaries, from Wasatch Boulevard in Salt Lake City to headwaters.

Big Cottonwood Creek and tributaries, from Wasatch Boulevard in Salt Lake City to headwaters.

Little Willow Creek and tributaries, from diversion to headwaters (Salt Lake County.)

Bell Canyon Creek and tributaries, from Lower Bells Canyon Reservoir to headwaters (Salt Lake County).

South Fork of Dry Creek and tributaries, from Draper Irrigation Company diversion to headwaters (Salt Lake County).

8. Provo River Drainage

Upper Falls drainage above Provo City diversion (Utah County).

Bridal Veil Falls drainage above Provo City diversion (Utah County).

Lost Creek and tributaries, above Provo City diversion (Utah County).

9. Sevier River Drainage

Chicken Creek and tributaries, from diversion at canyon mouth to headwaters.

Pigeon Creek and tributaries, from diversion to headwaters.

East Fork of Sevier River and tributaries, from Kingston diversion to headwaters.

Parowan Creek and tributaries, from Parowan City to headwaters.

Summit Creek and tributaries, from Summit City to headwaters.

Braffits Creek and tributaries, from canyon mouth to headwaters.

Right Hand Creek and tributaries, from confluence with Coal Creek to headwaters.

10. Raft River Drainage

Clear Creek and tributaries, from state line to headwaters (Box Elder County).

Birch Creek (Box Elder County), from state line to headwaters.

Cotton Thomas Creek from confluence with South Junction Creek to headwaters.

11. Western Great Salt Lake Drainage

All streams on the south slope of the Raft River Mountains above 7000' mean sea level.

Donner Creek (Box Elder County), from irrigation diversion to Utah-Nevada state line.

Bettridge Creek (Box Elder County), from irrigation diversion

to Utah-Nevada state line.

Clover Creek, from diversion to headwaters.

All surface waters on public land on the Deep Creek Mountains.

12. Farmington Bay Drainage

Holmes Creek and tributaries, from Highway US-89 to headwaters (Davis County).

Shepard Creek and tributaries, from Haight Bench diversion to headwaters (Davis County).

Farmington Creek and tributaries, from Haight Bench Canal diversion to headwaters (Davis County).

Steed Creek and tributaries, from Highway US-89 to headwaters (Davis County).

12.2 Category 2 Waters.

In addition to assigned use classes, the following surface waters of the State are hereby designated as Category 2 Waters:

a. Green River Drainage

Deer Creek, a tributary of Huntington Creek, from the forest boundary to 4800 feet upstream.

Electric Lake.

R317-2-13. Classification of Waters of the State (see R317-2-6).

a. Colorado River Drainage

13.1 Upper Colorado River Basin

TABLE

Paria River and tributaries, from state line to headwaters	2B	3C	4	
All tributaries to Lake Powell, except as listed below	2B	3B	4	
Tributaries to Escalante River from confluence with Boulder Creek to headwaters, including Boulder Creek	2B	3A	4	
Dirty Devil River and tributaries, from Lake Powell to Fremont River	2B	3C	4	
Deer Creek and tributaries, from confluence with Boulder Creek to headwaters	2B	3A	4	
Fremont River and tributaries, from confluence with Muddy Creek to Capitol				
Reef National Park, except as listed below	1C	2B	3C	4

Pleasant Creek and tributaries, from confluence with Fremont River to East boundary of Capitol Reef National Park		2B	3C	4
Pleasant Creek and tributaries, from East boundary of Capitol Reef National Park to headwaters	1C	2B	3A	
Fremont River and tributaries, through Capitol Reef National Park to headwaters	1C	2A	3A	4
Muddy Creek and tributaries, from confluence with Fremont River to Highway U-10 crossing, except as listed below		2B	3C	4 <u>(1)</u>
Quitichupah Creek and Tributaries, from Highway U-10 crossing to headwaters		2B	3A	4
Ivie Creek and tributaries, from Highway U-10 to headwaters		2B	3A	4
Muddy Creek and tributaries, from Highway U-10 crossing to headwaters	1C	2B	3A	4
San Juan River and Tributaries, from Lake Powell to state line except As listed below:	1C	2A	3B	4
Johnson Creek and tributaries, from confluence with Recapture Creek to headwaters	1C	2B	3A	4
Verdure Creek and tributaries, from Highway US-191 crossing to headwaters		2B	3A	4
North Creek and tributaries, from confluence with Montezuma				

Creek to headwaters	1C	2B 3A	4
South Creek and tributaries, from confluence with Montezuma Creek to headwaters	1C	2B 3A	4
Spring Creek and tributaries, from confluence with Vega Creek to headwaters		2B 3A	4
Montezuma Creek and tributaries, from U.S. Highway 191 to headwaters	1C	2B 3A	4
Colorado River and tributaries, from Lake Powell to state line except as listed below	1C 2A	3B	4 (1)
Indian Creek and tributaries, through Newspaper Rock State Park to headwaters	1C	2B 3A	4
Kane Canyon Creek and tributaries, from confluence with Colorado River to headwaters		2B 3C	4
Mill Creek and tributaries, from confluence with Colorado River to headwaters	1C	2B 3A	4
Dolores River and tributaries, from confluence with Colorado River to state line		2B 3C	4
Roc Creek and tributaries, from confluence with Dolores River to headwaters		2B 3A	4
LaSal Creek and tributaries, from state line to headwaters		2B 3A	4
Lion Canyon Creek and tributaries, from state line to headwaters		2B 3A	4
Little Dolores River and tributaries, from confluence with Colorado River to state line		2B 3C	4
Bitter Creek and tributaries,			

from confluence with Colorado River to headwaters 2B 3C 4

(1) Site-specific criteria are associated with this use for some or all of the waters described.

b. Green River Drainage

TABLE

Green River and tributaries, from confluence with Colorado River to state line except as listed below:	1C	2A	3B	4
Thompson Creek and tributaries from Interstate Highway 70 to headwaters		2B	3C	4
San Rafael River and tributaries, from confluence with Green River to confluence with Ferron Creek		2B	3C	4 <u>(1)</u>
Ferron Creek and tributaries, from confluence with San				
Rafael River to Millsite Reservoir		2B	3C	4 <u>(1)</u>
Ferron Creek and tributaries, from Millsite Reservoir to headwaters	1C	2B	3A	4
Huntington Creek and tributaries, from confluence with Cottonwood Creek to Highway U-10 crossing		2B	3C	4 <u>(1)</u>
Huntington Creek and tributaries, from Highway U-10 crossing to headwaters	1C	2B	3A	4
Cottonwood Creek and tributaries, from confluence with Huntington Creek to				
Highway U-57 crossing		2B	3C	4 <u>(1)</u>
Cottonwood Creek and tributaries, from Highway U-57 crossing to headwaters	1C	2B	3A	4

Cottonwood Canal, Emery County	1C	2B	3E	4
Price River and tributaries, from confluence with Green River to Carbon Canal Diversion at Price City Golf Course				
<u>except as listed below</u>	2B	3C	4	<u>(1)</u>
<u>Except as listed below</u>				
<u>Grassy Trail Creek and tributaries, from Grassy Trail Creek Reservoir to headwaters</u>	1C	2B 3A		4
Price River and tributaries, from Carbon Canal Diversion at Price City Golf Course to Price City Water Treatment Plant intake.		2B 3A		4
Price River and tributaries, from Price City Water Treatment Plant intake to headwaters	1C	2B 3A		4
Range Creek and tributaries, from confluence with Green River to Range Creek Ranch		2B 3A		4
Range Creek and tributaries, from Range Creek Ranch to headwaters	1C	2B 3A		4
Rock Creek and tributaries, from confluence with Green River to headwaters		2B 3A		4
Nine Mile Creek and tributaries, from confluence with Green River to headwaters		2B 3A		4
Pariette Draw and tributaries, from confluence with Green River to headwaters		2B	3B 3D	4
Willow Creek and tributaries (Uintah County), from confluence with Green River to headwaters		2B 3A		4

White River and tributaries, from confluence with Green River to state line, except as listed below		2B	3B	4
Bitter Creek and Tributaries from White River to Headwaters		2B	3A	4
Duchesne River and tributaries, from confluence with Green River to Myton Water Treatment Plant intake, except as listed below		2B	3B	4
Uinta River and tributaries, From confluence with Duchesne River to Highway US-40 crossing		2B	3B	4
Uinta River and tributaries, From Highway US-4- crossing to headwaters		2B	3A	4
Power House Canal from Confluence with Uinta River to headwaters		2B	3A	4
Whiterocks River and Canal, From Tridell Water Treatment Plant to Headwaters	1C	2B	3A	4
Duchesne River and tributaries, from Myton Water Treatment Plant intake to headwaters	1C	2B	3A	4
Lake Fork River and tributaries, from confluence with Duchesne River to headwaters	1C	2B	3A	4
Lake Fork Canal from Dry Gulch Canal Diversion to Moon Lake	1C	2B		3E 4
Dry Gulch Canal, from Myton Water Treatment Plant to Lake Fork Canal	1C	2B		3E 4
Ashley Creek and				

tributaries, from confluence with Green River to Steinaker diversion		2B	3B	4
Ashley Creek and tributaries, from Steinaker diversion to headwaters	1C	2B	3A	4
Big Brush Creek and tributaries, from confluence with Green River to Tyzack (Red Fleet) Dam		2B	3B	4
Big Brush Creek and tributaries, from Tyzack (Red Fleet) Dam to headwaters	1C	2B	3A	4
Jones Hole Creek and tributaries, from confluence with Green River to headwaters		2B	3A	
Diamond Gulch Creek and tributaries, from confluence with Green River to headwaters		2B	3A	4
Pot Creek and tributaries, from Crouse Reservoir to headwaters		2B	3A	4
Green River and tributaries, from Utah-Colorado state line to Flaming Gorge Dam except as listed below:	2A	3A		4
Sears Creek and tributaries, Daggett County		2B	3A	
Tolivers Creek and tributaries, Daggett County		2B	3A	
Red Creek and tributaries, from confluence with Green River to state line		2B	3C	4
Jackson Creek and tributaries, Daggett County		2B	3A	
Davenport Creek and				

tributaries, Daggett County	2B	3A	
Goslin Creek and tributaries, Daggett County	2B	3A	
Gorge Creek and tributaries, Daggett County	2B	3A	
Beaver Creek and tributaries, Daggett County	2B	3A	
O-Wi-Yu-Kuts Creek and tributaries, Daggett County	2B	3A	
Tributaries to Flaming Gorge Reservoir, except as listed below	2B	3A	4
Birch Spring Draw and tributaries, from Flaming Gorge Reservoir to headwaters	2B	3C	4
Spring Creek and tributaries, from Flaming Gorge Reservoir to headwaters	2B	3A	
All Tributaries of Flaming Gorge Reservoir from Utah-Wyoming state line to headwaters	2B	3A	4
<u>(1) Site-specific criteria are associated with this use for some or all of the waters described.</u>			
13.2 Lower Colorado River Basin			
a. Virgin River Drainage			

TABLE

Beaver Dam Wash and tributaries, from Motoqua to headwaters	2B	3B	4	
Virgin River and tributaries from state line to Quail Creek diversion except as listed below	2B	3B	4 (1)	
Santa Clara River from confluence with Virgin River to Gunlock Reservoir	1C	2B	3B	4
Santa Clara River and tributaries, from Gunlock Reservoir to headwaters	2B	3A	4	

Leed's Creek, from confluence with Quail Creek to headwaters		2B 3A		4
Quail Creek from Quail Creek Reservoir to headwaters	1C	2B 3A		4
Ash Creek and tributaries, from confluence with Virgin River to Ash Creek Reservoir		2B 3A		4
Ash Creek and tributaries, From Ash Creek Reservoir to headwaters		2B 3A		4
Virgin River and tributaries, from the Quail Creek diversion to headwaters, except as listed below	1C	2B	3C	4 (1)
North Fork Virgin River and tributaries	1C 2A	3A		4
East Fork Virgin River, from town of Glendale to headwaters		2B 3A		4
Kolob Creek, from confluence with Virgin River to headwaters		2B 3A		4

b. Kanab Creek Drainage

[\(1\) Site-specific criteria are associated with this use for some or all of the waters described.](#)

TABLE

Kanab Creek and tributaries, from state line to irrigation diversion at confluence with Reservoir Canyon		2B	3C	4
Kanab Creek and tributaries, from irrigation diversion at confluence with Reservoir Canyon to headwaters		2B 3A		4
Johnson Wash and tributaries, from state line to confluence with Skutumpah Canyon		2B	3C	4
Johnson Wash and tributaries, from confluence with				

Skutumpah Canyon to headwaters	2B 3A	4
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13.3 Bear River Basin
a. Bear River Drainage

TABLE

Bear River and tributaries, from Great Salt Lake to Utah-Idaho border, except as listed below:	2B	3B	3D	4
Perry Canyon Creek from U.S. Forest boundary to headwaters	2B 3A			4
Box Elder Creek from confluence with Black Slough to Brigham City Reservoir (the Mayor's Pond)	2B		3C	4
Box Elder Creek, from Brigham City Reservoir (the Mayor's Pond) to headwaters	2B 3A			4
Salt Creek, from confluence with Bear River to Crystal Hot Springs	2B	3B	3D	
Malad River and tributaries, from confluence with Bear River to state line	2B		3C	
Little Bear River and tributaries, from Cutler Reservoir to headwaters	2B 3A		3D	4 (1)
Logan River and tributaries, from Cutler Reservoir to headwaters	2B 3A		3D	4
Blacksmith Fork and tributaries, from confluence with Logan River to headwaters	2B 3A			4
Newton Creek and tributaries, from Cutler Reservoir to Newton Reservoir	2B 3A			4
Clarkston Creek and tributaries, from Newton Reservoir to headwaters	2B 3A			4
Birch Creek and tributaries, from				

confluence with Clarkston Creek to headwaters		2B 3A	4
Summit Creek and tributaries, from confluence with Bear River to headwaters		2B 3A	4
Cub River and tributaries, from confluence with Bear River to state line, except as listed below:		2B 3B	4
High Creek and tributaries, from confluence with Cub River to headwaters		2B 3A	4
All tributaries to Bear Lake from Bear Lake to headwaters, except as listed below		2B 3A	4
Swan Springs tributary to Swan Creek	1C	2B 3A	
Bear River and tributaries in Rich County		2B 3A	4
Bear River and tributaries, from Utah-Wyoming state line to headwaters (Summit County)		2B 3A	4
Mill Creek and tributaries, from state line to headwaters (Summit County)		2B 3A	4

(1) Site-specific criteria are associated with this use for some or all of the waters described.

13.4 Weber River Basin
a. Weber River Drainage

TABLE

Willard Creek, from Willard Bay Reservoir to headwaters		2B 3A	4
Weber River, from Great Salt Lake to Slaterville diversion, except as listed below:		2B 3C 3D	4
Four Mile Creek from I-15			

To headwaters	2B	3A	4
Weber River and tributaries, from Slaterville diversion to Stoddard diversion, except as listed below	2B	3A	4
Ogden River and tributaries, From confluence with Weber River To Pineview Dam, except as listed Below	2A	3A	4
Wheeler Creek from Confluence with Ogden River to headwaters	1C	2B 3A	4
All tributaries to Pineview Reservoir	1C	2B 3A	4
Strong's Canyon Creek and Tributaries, from U.S. National Forest boundary to headwaters	1C	2B 3A	4
Burch Creek and tributaries, from Harrison Boulevard in Ogden to Headwaters	1C	2B 3A	
Spring Creek and tributaries, From U.S. National Forest Boundary to headwaters	1C	2B 3A	4
Weber River and tributaries, from Stoddard diversion to headwaters	1C	2B 3A	4

13.5 Utah Lake-Jordan River Basin
a. Jordan River Drainage

TABLE

Jordan River, from Farmington Bay to North Temple Street, Salt Lake City 4	2B	3B <u>3B(1)*</u>	3D
State Canal, from Farmington Bay to confluence with the Jordan River 4	2B	3B <u>(1)*</u>	3D

Jordan River, from North Temple Street in Salt Lake City to confluence with Little Cottonwood Creek			2B	3B <u>(1)</u> —*	
4					
Surplus Canal from Great Salt Lake to the diversion from the Jordan River			2B	3B <u>(1)</u> —*	3D
4					
Jordan River from confluence with Little Cottonwood Creek to Narrows Diversion			2B 3A		4
Jordan River, from Narrows Diversion to Utah Lake	1C		2B	3B	4
City Creek, from Memory Park in Salt Lake City to City Creek Water Treatment Plant			2B 3A		
City Creek, from City Creek Water Treatment Plant to headwaters	1C		2B 3A		
Red Butte Creek and tributaries from Liberty Park pond inlet to Red Butte Reservoir			2B 3A		4
Red Butte Creek and tributaries, from Red Butte Reservoir to headwaters	1C		2B 3A		
Emigration Creek and tributaries, from 1100 East in Salt Lake City to headwaters			2B 3A		4
Parley's Creek and tributaries, from 1300 East in Salt Lake City to Mountain Dell Reservoir	1C		2B 3A		
Parley's Creek and tributaries, from Mountain Dell Reservoir to headwaters	1C		2B 3A		
Mill Creek (Salt Lake County) from confluence with Jordan River to Interstate Highway 15			2B	3C	4
Mill Creek (Salt Lake County)					

and tributaries from Interstate Highway 15 to headwaters		2B 3A		4
Big Cottonwood Creek and tributaries, from confluence with Jordan River to Big Cottonwood Water Treatment Plant		2B 3A		4
Big Cottonwood Creek and tributaries, from Big Cottonwood Water Treatment Plant to headwaters	1C	2B 3A		
Deaf Smith Canyon Creek and tributaries	1C	2B 3A		4
Little Cottonwood Creek and tributaries, from confluence with Jordan River to Metropolitan Water Treatment Plant		2B 3A		4
Little Cottonwood Creek and tributaries, from Metropolitan Water Treatment Plant to headwaters	1C	2B 3A		
Bell Canyon Creek and tributaries, from lower Bell's Canyon reservoir to headwaters	1C	2B 3A		
Little Willow Creek and tributaries, from Draper Irrigation Company diversion to headwaters	1C	2B 3A		
Big Willow Creek and tributaries, from Draper Irrigation Company diversion to headwaters	1C	2B 3A		
South Fork of Dry Creek and tributaries, from Draper Irrigation Company diversion to headwaters	1C	2B 3A		
All permanent streams on east slope of Oquirrh Mountains (Coon, Barney's, Bingham, Butterfield, and Rose Creeks)		2B	3D	4
Kersey Creek from confluence of C-7				

Ditch to headwaters

2B

3D

* (1) Site-specific criteria are associated with this use for some or all of the waters described. Site-specific criteria for dissolved oxygen. See Table 2.14.5.

b. Provo River Drainage

TABLE

Provo River and tributaries,
from Utah Lake to Murdock
diversion

2B 3A

4

Provo River and tributaries,
from Murdock Diversion to
headwaters, except as listed
below

1C

2B 3A

4

Upper Falls drainage above Provo
City diversion

1C

2B 3A

Bridal Veil Falls drainage above
Provo City diversion

1C

2B 3A

Lost Creek and tributaries above
Provo City diversion

1C

2B 3A

c. Utah Lake Drainage

TABLE

Dry Creek and tributaries (above
Alpine), from U.S. National
Forest boundary to headwaters

2B 3A

4

American Fork Creek and
tributaries, from diversion at
mouth of American Fork Canyon to
headwaters

2B 3A

4

Spring Creek and tributaries,
from Utah Lake near Lehi to
headwaters

2B 3A

4

Lindon Hollow Creek and
tributaries, from Utah Lake to
headwaters

2B

3B

4

Rock Canyon Creek and tributaries
(East of Provo) from U.S.
National Forest boundary to

headwaters	1C	2B 3A	4
Mill Race (except from Interstate Highway 15 to the Provo City WWTP discharge) and tributaries from Utah Lake to headwaters		2B 3B	4
Mill Race from Interstate Highway 15 to the Provo City wastewater treatment plant discharge		2B 3B	4
Spring Creek and tributaries from Utah Lake (Provo Bay) to 50 feet upstream from the east boundary of the Industrial Parkway Road Right-of-way		2B 3B	4
Tributary to Spring Creek (Utah County) which receives the Springville City WWTP effluent from confluence with Spring Creek to headwaters		2B 3D	4
Spring Creek and tributaries from 50 feet upstream from the east boundary of the Industrial Parkway Road right-of-way to the headwaters		2B 3A	4
Ironton Canal from Utah Lake (Provo Bay) to the east boundary of the Denver and Rio Grande Western Railroad right-of-way		2B 3C	4
Ironton Canal from the east boundary of the Denver and Rio Grande Western Railroad right-of-way to the point of diversion from Spring Creek		2B 3A	4
Hobble Creek and tributaries, from Utah Lake to headwaters		2B 3A	4
Dry Creek and tributaries from Utah Lake (Provo Bay) to Highway-US 89		2B 3E	4
Dry Creek and tributaries from Highway-US 89 to headwaters		2B 3A	4
Spanish Fork River and			

tributaries, from Utah Lake to diversion at Moark Junction	2B	3B	3D	4
Spanish Fork River and tributaries, from diversion at Moark Junction to headwaters	2B	3A		4
Benjamin Slough and tributaries from Utah Lake to headwaters, except as listed below	2B	3B		4
Beer Creek (Utah County) from 4850 West (in NE1/4NE1/4 sec. 36, T.8 S., R.1 E.) to headwaters	2B	3C		4
Salt Creek, from Nephi diversion to headwaters	2B	3A		4
Currant Creek, from mouth of Goshen Canyon to Mona Reservoir	2B	3A		4
Currant Creek, from Mona Reservoir to headwaters	2B	3A		4
Peteetneet Creek and tributaries, from irrigation diversion above Maple Dell to headwaters	2B	3A		4
Summit Creek and tributaries (above Santaquin), from U.S. National Forest boundary to headwaters	2B	3A		4
All other permanent streams entering Utah Lake	2B	3B		4
13.6 Sevier River Basin				
a. Sevier River Drainage				

TABLE

Sevier River and tributaries from Sevier Lake to Gunnison Bend Reservoir to U.S.National Forest boundary except as listed below _____	2B	3C	4
--	----	----	---

Beaver River and tributaries from Minersville City to headwaters	2B 3A	4
Little Creek and tributaries, From irrigation diversion to Headwaters	2B 3A	4
Pinto Creek and tributaries, From Newcastle Reservoir to Headwaters	2B 3A	4
Coal Creek and tributaries	2B 3A	4
Summit Creek and tributaries	2B 3A	4
Parowan Creek and tributaries	2B 3A	4
Tributaries to Sevier River from Sevier Lake to Gunnison Bend Reservoir from U.S. National Forest boundary to headwaters, including:	2B 3A	4
Pioneer Creek and tributaries, Millard County	2B 3A	4
Chalk Creek and tributaries, Millard County	2B 3A	4
Meadow Creek and tributaries, Millard County	2B 3A	4
Corn Creek and tributaries, Millard County	2B 3A	4
Sevier River and tributaries below U.S. National Forest boundary from Gunnison Bend Reservoir to _ Annabella _Diversion except_ as listed below _____ 4 (1)	2B	3B
Oak Creek and tributaries, Millard County	2B 3A	4
Round Valley Creek and tributaries, Millard County	2B 3A	4
Judd Creek and tributaries,		

Juab County	2B 3A	4
Meadow Creek and tributaries, Juab County	2B 3A	4
Cherry Creek and tributaries Juab County	2B 3A	4
Tanner Creek and tributaries, Juab County	2B	3E 4
Baker Hot Springs, Juab County	2B	3D 4
Chicken Creek and tributaries, Juab County	2B 3A	4
San Pitch River and tributaries, from confluence with Sevier River to Highway U-132 crossing except As listed below:	2B	3C 3D 4 (1)
Twelve Mile Creek (South Creek) and tributaries, from U.S. Forest Service boundary to headwaters	2B 3A	4
Six Mile Creek and tributaries, Sanpete County	2B 3A	4
Manti Creek (South Creek) and tributaries, from U.S. Forest Service boundary to headwaters	2B 3A	4
Ephraim Creek (Cottonwood Creek) and tributaries, from U.S. Forest Service to headwaters	2B 3A	4
Oak Creek and tributaries, from U.S. Forest Service boundary near Spring City to headwaters	2B 3A	4
Fountain Green Creek and tributaries, from U.S. Forest Service boundary to headwaters	2B 3A	4

San Pitch River and tributaries, from Highway U-132 crossing to headwaters	2B 3A	4
Tributaries to Sevier River from Gunnison Bend Reservoir to Annabelle Diversion from U.S. National Forest boundary to headwaters	2B 3A	4
Sevier River and tributaries, from Annabella diversion to headwaters	2B 3A	4
Monroe Creek and tributaries, from diversion to headwaters	2B 3A	4
Little Creek and tributaries, from irrigation diversion to headwaters	2B 3A	4
Pinto Creek and tributaries, from Newcastle Reservoir to headwaters	2B 3A	4
Coal Creek and tributaries	2B 3A	4
Summit Creek and tributaries	2B 3A	4
Parowan Creek and tributaries	2B 3A	4
Duck Creek and tributaries	1C 2B 3A	4
<u>(1) Site-specific criteria are associated with this use for some or all of the waters described.</u>		
13.7 Great Salt Lake Basin		
a. Western Great Salt Lake Drainage		

TABLE

Grouse Creek and tributaries, Box Elder County	2B 3A	4
Muddy Creek and tributaries, Box Elder County	2B 3A	4
Dove Creek and tributaries, Box Elder County	2B 3A	4
Pine Creek and tributaries, Box Elder County	2B 3A	4

Rock Creek and tributaries, Box Elder County	2B	3A	4
Fisher Creek and tributaries, Box Elder County	2B	3A	4
Dunn Creek and tributaries, Box Elder County	2B	3A	4
Indian Creek and tributaries, Box Elder County	2B	3A	4
Tenmile Creek and tributaries, Box Elder County	2B	3A	4
Curlew (Deep) Creek, Box Elder County	2B	3A	4
Blue Creek and tributaries, from Great Salt Lake to Blue Creek Reservoir	2B	3D	4 (1)
Blue Creek and tributaries, from Blue Creek Reservoir to headwaters	2B	3B	4 (1)
All perennial streams on the east slope of the Pilot Mountain Range	1C	2B 3A	4
Donner Creek and tributaries, from irrigation diversion to Utah-Nevada state line	2B	3A	4
Bettridge Creek and tributaries, from irrigation diversion to Utah-Nevada state line	2B	3A	4
North Willow Creek and tributaries, Tooele County	2B	3A	4
South Willow Creek and tributaries, Tooele County	2B	3A	4
Hickman Creek and tributaries, Tooele County	2B	3A	4
Barlow Creek and tributaries, Tooele County	2B	3A	4

Clover Creek and tributaries, Tooele County		2B 3A	4
Faust Creek and tributaries, Tooele County		2B 3A	4
Vernon Creek and tributaries, Tooele County		2B 3A	4
Ophir Creek and tributaries, Tooele County		2B 3A	4
Soldier Creek and Tributaries from the Drinking Water Treatment Facility Headwaters, Tooele County	1C	2B 3A	4
Settlement Canyon Creek and tributaries, Tooele County		2B 3A	4
Middle Canyon Creek and tributaries, Tooele County		2B 3A	4
Tank Wash and tributaries, Tooele County		2B 3A	4
Basin Creek and tributaries, Juab and Tooele Counties		2B 3A	4
Thomas Creek and tributaries, Juab County		2B 3A	4
Indian Farm Creek and tributaries, Juab County		2B 3A	4
Cottonwood Creek and tributaries, Juab County		2B 3A	4
Red Cedar Creek and tributaries, Juab County		2B 3A	4
Granite Creek and tributaries, Juab County		2B 3A	4
Trout Creek and tributaries, Juab County		2B 3A	4
Birch Creek and tributaries, Juab County		2B 3A	4

Deep Creek and tributaries, from Rock Spring Creek to headwaters, Juab and Tooele Counties	2B 3A		4
Cold Spring, Juab County	2B	3C 3D	
Cane Spring, Juab County	2B	3C 3D	
Lake Creek, from Garrison (Pruess) Reservoir to Nevada state line	2B 3A		4
Snake Creek and tributaries, Millard County	2B	3B	4
Salt Marsh Spring Complex, Millard County	2B 3A		
Twin Springs, Millard County	2B	3B	
Tule Spring, Millard County	2B	3C 3D	
Coyote Spring Complex, Millard County	2B	3C 3D	
Hamblin Valley Wash and tributaries, from Nevada state line to headwaters (Beaver and Iron Counties)	2B	3D	4
Indian Creek and tributaries, Beaver County, from Indian Creek Reservoir to headwaters	2B 3A		4
Shoal Creek and tributaries, Iron County	2B 3A		4
<u>(1) Site-specific criteria are associated with this use for some or all of the waters described.</u>			
b. Farmington Bay Drainage			

TABLE

Corbett Creek and tributaries, from Highway to headwaters	2B 3A		4
Kays Creek and tributaries, from Farmington Bay to U.S. National Forest boundary	2B	3B	4

North Fork Kays Creek and tributaries, from U.S. National Forest boundary to headwaters		2B 3A	4
Middle Fork Kays Creek and tributaries, from U.S. National Forest boundary to headwaters	1C	2B 3A	4
South Fork Kays Creek and tributaries, from U.S. National Forest boundary to headwaters	1C	2B 3A	4
Snow Creek and tributaries		2B 3C	4
Holmes Creek and tributaries, from Farmington Bay to U.S. National Forest boundary		2B 3B	4
Holmes Creek and tributaries, from U.S. National Forest boundary to headwaters	1C	2B 3A	4
Baer Creek and tributaries, from Farmington Bay to Interstate Highway 15		2B 3C	4
Baer Creek and tributaries, from Interstate Highway 15 to Highway US-89		2B 3B	4
Baer Creek and tributaries, from Highway US-89 to headwaters	1C	2B 3A	4
Shepard Creek and tributaries, from U.S. National Forest boundary to headwaters	1C	2B 3A	4
Farmington Creek and tributaries, from Farmington Bay Waterfowl Management Area to U.S. National Forest boundary		2B 3B	4
Farmington Creek and tributaries, from U.S. National Forest boundary to headwaters	1C	2B 3A	4
Rudd Creek and tributaries, from Davis aqueduct to headwaters		2B 3A	4
Steed Creek and tributaries,			

from U.S. National Forest boundary to headwaters	1C	2B 3A	4
Davis Creek and tributaries, from Highway US-89 to headwaters		2B 3A	4
Lone Pine Creek and tributaries, from Highway US-89 to headwaters		2B 3A	4
Ricks Creek and tributaries, from Highway I-15 to headwaters	1C	2B 3A	4
Barnard Creek and tributaries, from Highway US-89 to headwaters		2B 3A	4
Parrish Creek and tributaries, from Davis Aqueduct to headwaters		2B 3A	4
Deuel Creek and tributaries, (Centerville Canyon) from Davis Aqueduct to headwaters		2B 3A	4
Stone Creek and tributaries, from Farmington Bay Waterfowl Management Area to U.S. National Forest boundary		2B 3A	4
Stone Creek and tributaries, from U.S. National Forest boundary to headwaters	1C	2B 3A	4
Barton Creek and tributaries, from U.S. National Forest boundary to headwaters		2B 3A	4
Mill Creek (Davis County) and tributaries, from confluence with State Canal to U.S. National Forest boundary		2B 3B	4
Mill Creek (Davis County) and tributaries, from U.S. National Forest boundary to headwaters	1C	2B 3A	4
North Canyon Creek and tributaries, from U.S. National Forest boundary to headwaters		2B 3A	4
Howard Slough		2B 3C	4
Hooper Slough		2B 3C	4

Willard Slough		2B	3C	4
Willard Creek to Headwaters	1C	2B	3A	4
Chicken Creek to Headwaters	1C	2B	3A	4
Cold Water Creek to Headwaters	1C	2B	3A	4
One House Creek to Headwaters	1C	2B	3A	4
Garner Creek to Headwaters	1C	2B	3A	4

13.8 Snake River Basin

a. Raft River Drainage (Box Elder County)

TABLE

Raft River and tributaries		2B	3A	4
Clear Creek and tributaries, from Utah-Idaho state line to headwaters		2B	3A	4
Onemile Creek and tributaries, from Utah-Idaho state line to headwaters		2B	3A	4
George Creek and tributaries, from Utah-Idaho state line to headwaters		2B	3A	4
Johnson Creek and tributaries, from Utah-Idaho state line to headwaters		2B	3A	4
Birch Creek and tributaries, from state line to headwaters		2B	3A	4
Pole Creek and tributaries, from state line to headwaters		2B	3A	4
Goose Creek and tributaries		2B	3A	4
Hardesty Creek and tributaries, from state line to headwaters		2B	3A	4
Meadow Creek and tributaries, from state line to headwaters		2B	3A	4

13.9 All irrigation canals and ditches statewide, except as otherwise designated: 2B, 3E, 4

13.10 All drainage canals and ditches statewide, except as otherwise designated: 2B, 3E

13.11 National Wildlife Refuges and State Waterfowl Management Areas, and other Areas Associated with the Great Salt Lake

TABLE

Bear River National Wildlife Refuge, Box Elder County	2B	3B	3D	
Bear River Bay				
Open Water below approximately 4,208 ft.				5C
Transitional Waters approximately 4,208 ft. to Open Water				5E
Open Water above approximately 4,208 ft.	2B	3B	3D	
Brown's Park Waterfowl Management Area, Daggett County	2B	3A	3D	
Clear Lake Waterfowl Management Area, Millard County	2B		3C 3D	
Desert Lake Waterfowl Management Area, Emery County	2B		3C 3D	
Farmington Bay Waterfowl Management Area, Davis and Salt Lake Counties	2B		3C 3D	
Farmington Bay				
Open Water below approximately 4,208 ft.				5D
Transitional Waters approximately 4,208 ft. to Open Water				5E
Open Water above approximately 4,208 ft.	2B	3B	3D	
Fish Springs National Wildlife Refuge, Juab County	2B		3C 3D	
Harold Crane Waterfowl Management Area, Box Elder County	2B		3C 3D	

Gilbert Bay

Open Water below approximately 4,208 ft.				5A
Transitional Waters approximately 4,208 ft. to Open Water				5E
Open Water above approximately 4,208 ft.	2B	3B	3D	

Gunnison Bay

Open Water below approximately 4,208 ft.				5B
Transitional Waters approximately 4,208 ft. to Open Water				5E
Open Water above approximately 4,208 ft.	2B	3B	3D	

Howard Slough Waterfowl Management Area, Weber County	2B		3C 3D
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Locomotive Springs Waterfowl Management Area, Box Elder County	2B	3B	3D
Ogden Bay Waterfowl Management Area, Weber County	2B		3C 3D

Ouray National Wildlife Refuge, Uintah County	2B	3B	3D
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Powell Slough Waterfowl Management Area, Utah County	2B		3C 3D
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Public Shooting Grounds Waterfowl Management Area, Box Elder County	2B		3C 3D
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Salt Creek Waterfowl Management Area, Box Elder County	2B		3C 3D
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Stewart Lake Waterfowl Management Area, Uintah County	2B	3B	3D
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Timpie Springs Waterfowl Management Area, Tooele County	2B	3B	3D
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13.12 Lakes and Reservoirs. All lakes and any reservoirs greater than 10 acres not listed in 13.12 are assigned by default to the classification of the stream with which they are associated.

a. Beaver County

TABLE

Anderson Meadow Reservoir	2B 3A		4
Manderfield Reservoir	2B 3A		4
LaBaron Reservoir	2B 3A		4
Kent's Lake	2B 3A		4
Minersville Reservoir	2B 3A	3D	4
Puffer Lake	2B 3A		
Three Creeks Reservoir	2B 3A		4

b. Box Elder County

TABLE

Cutler Reservoir (including portion in Cache County)	2B	3B	3D	4
Etna Reservoir	2B 3A			4
Lynn Reservoir	2B 3A			4
Mantua Reservoir	2B 3A			4
Willard Bay Reservoir	1C 2A	3B	3D	4

c. Cache County

TABLE

Hyrum Reservoir	2A	3A		4
Newton Reservoir	2B 3A			4
Porcupine Reservoir	2B 3A			4
Pelican Pond	2B	3B		4
Tony Grove Lake	2B 3A			4

d. Carbon County

TABLE

Grassy Trail Creek Reservoir	1C	2B 3A		4
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Olsen Pond		2B	3B	4
Scofield Reservoir	1C	2B	3A	4

e. Daggett County

TABLE

Browne Reservoir		2B	3A	4
Daggett Lake		2B	3A	4
Flaming Gorge Reservoir (Utah portion)	1C	2A	3A	4
Long Park Reservoir	1C	2B	3A	4
Sheep Creek Reservoir		2B	3A	4
Spirit Lake		2B	3A	4
Upper Potter Lake		2B	3A	4

f. Davis County

TABLE

Farmington Ponds		2B	3A	4
Kaysville Highway Ponds		2B	3A	4
Holmes Creek Reservoir		2B	3B	4

g. Duchesne County

TABLE

Allred Lake		2B	3A	4
Atwine Lake		2B	3A	4
Atwood Lake		2B	3A	4
Betsy Lake		2B	3A	4
Big Sandwash Reservoir	1C	2B	3A	4
Bluebell Lake		2B	3A	4

Brown Duck Reservoir	2B 3A	4
Butterfly Lake	2B 3A	4
Cedarview Reservoir	2B 3A	4
Chain Lake #1	2B 3A	4
Chepeta Lake	2B 3A	4
Clements Reservoir	2B 3A	4
Cleveland Lake	2B 3A	4
Cliff Lake	2B 3A	4
Continent Lake	2B 3A	4
Crater Lake	2B 3A	4
Crescent Lake	2B 3A	4
Daynes Lake	2B 3A	4
Dean Lake	2B 3A	4
Doll Lake	2B 3A	4
Drift Lake	2B 3A	4
Elbow Lake	2B 3A	4
Farmer's Lake	2B 3A	4
Fern Lake	2B 3A	4
Fish Hatchery Lake	2B 3A	4
Five Point Reservoir	2B 3A	4
Fox Lake Reservoir	2B 3A	4
Governor's Lake	2B 3A	4
Granddaddy Lake	2B 3A	4
Hoover Lake	2B 3A	4
Island Lake	2B 3A	4

Jean Lake	2B 3A	4
Jordan Lake	2B 3A	4
Kidney Lake	2B 3A	4
Kidney Lake West	2B 3A	4
Lily Lake	2B 3A	4
Midview Reservoir (Lake Boreham)	2B 3B	4
Milk Reservoir	2B 3A	4
Mirror Lake	2B 3A	4
Mohawk Lake	2B 3A	4
Moon Lake	1C 2A 3A	4
North Star Lake	2B 3A	4
Palisade Lake	2B 3A	4
Pine Island Lake	2B 3A	4
Pinto Lake	2B 3A	4
Pole Creek Lake	2B 3A	4
Potter's Lake	2B 3A	4
Powell Lake	2B 3A	4
Pyramid Lake	2A 3A	4
Queant Lake	2B 3A	4
Rainbow Lake	2B 3A	4
Red Creek Reservoir	2B 3A	4
Rudolph Lake	2B 3A	4
Scout Lake	2A 3A	4
Spider Lake	2B 3A	4
Spirit Lake	2B 3A	4

Starvation Reservoir	1C 2A	3A	4
Superior Lake		2B 3A	4
Swasey Hole Reservoir		2B 3A	4
Taylor Lake		2B 3A	4
Thompson Lake		2B 3A	4
Timothy Reservoir #1		2B 3A	4
Timothy Reservoir #6		2B 3A	4
Timothy Reservoir #7		2B 3A	4
Twin Pots Reservoir	1C	2B 3A	4
Upper Stillwater Reservoir	1C	2B 3A	4
X - 24 Lake		2B 3A	4

h. Emery County

TABLE

Cleveland Reservoir		2B 3A	4
Electric Lake		2B 3A	4
Huntington Reservoir		2B 3A	4
Huntington North Reservoir	2A	3B	4
Joe's Valley Reservoir	2A	3A	4
Millsite Reservoir	1C 2A	3A	4

i. Garfield County

TABLE

Barney Lake		2B 3A	4
Cyclone Lake		2B 3A	4
Deer Lake		2B 3A	4
Jacob's Valley Reservoir	2B	3C 3D	4

Lower Bowns Reservoir	2B 3A	4
North Creek Reservoir	2B 3A	4
Panguitch Lake	2B 3A	4
Pine Lake	2B 3A	4
Oak Creek Reservoir (Upper Bowns)	2B 3A	4
Pleasant Lake	2B 3A	4
Posey Lake	2B 3A	4
Purple Lake	2B 3A	4
Raft Lake	2B 3A	4
Row Lake #3	2B 3A	4
Row Lake #7	2B 3A	4
Spectacle Reservoir	2B 3A	4
Tropic Reservoir	2B 3A	4
West Deer Lake	2B 3A	4
Wide Hollow Reservoir	2B 3A	4

j. Iron County

TABLE

Newcastle Reservoir	2B 3A	4
Red Creek Reservoir	2B 3A	4
Yankee Meadow Reservoir	2B 3A	4

k. Juab County

TABLE

Chicken Creek Reservoir	2B	3C 3D	4
Mona Reservoir	2B	3B	4
Sevier Bridge (Yuba) Reservoir	2A	3B	4

l. Kane County

TABLE

Navajo Lake	2B	3A	4
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m. Millard County

TABLE

DMAD Reservoir	2B	3B	4
Fools Creek Reservoir	2B	3C 3D	4
Garrison Reservoir (Pruess Lake)	2B	3B	4
Gunnison Bend Reservoir	2B	3B	4

n. Morgan County

TABLE

East Canyon Reservoir	1C	2A	3A	4
Lost Creek Reservoir	1C	2B	3A	4

o. Piute County

TABLE

Barney Reservoir	2B	3A	4
Lower Boxcreek Reservoir	2B	3A	4
Manning Meadow Reservoir	2B	3A	4
Otter Creek Reservoir	2B	3A	4
Piute Reservoir	2B	3A	4
Upper Boxcreek Reservoir	2B	3A	4

p. Rich County

TABLE

Bear Lake (Utah portion)	2A	3A	4
Birch Creek Reservoir	2B	3A	4

Little Creek Reservoir		2B 3A	4
Woodruff Creek Reservoir		2B 3A	4

q. Salt Lake County

TABLE

Decker Lake		2B 3B 3D	4
Lake Mary	1C	2B 3A	
Little Dell Reservoir	1C	2B 3A	
Mountain Dell Reservoir	1C	2B 3A	

r. San Juan County

TABLE

Blanding Reservoir #4	1C	2B 3A	4
Dark Canyon Lake	1C	2B 3A	4
Ken's Lake		2B 3A** (1)	4
Lake Powell (Utah portion)	1C 2A	3B	4
Lloyd's Lake	1C	2B 3A	4
Monticello Lake		2B 3A	4
Recapture Reservoir		2B 3A	4

[\(1\) Site-specific criteria are associated with this use for some or all of the waters described.](#)

s. Sanpete County

TABLE

Duck Fork Reservoir		2B 3A	4
Fairview Lakes	1C	2B 3A	4
Ferron Reservoir		2B 3A	4
Lower Gooseberry Reservoir	1C	2B 3A	4
Gunnison Reservoir		2B 3C	4

Island Lake	2B 3A	4
Miller Flat Reservoir	2B 3A	4
Ninemile Reservoir	2B 3A	4
Palisade Reservoir	2A 3A	4
Rolfson Reservoir	2B 3C	4
Twin Lakes	2B 3A	4
Willow Lake	2B 3A	4

t. Sevier County

TABLE

Annabella Reservoir	2B 3A	4
Big Lake	2B 3A	4
Farnsworth Lake	2B 3A	4
Fish Lake	2B 3A	4
Forsythe Reservoir	2B 3A	4
Johnson Valley Reservoir	2B 3A	4
Koosharem Reservoir	2B 3A	4
Lost Creek Reservoir	2B 3A	4
Redmond Lake	2B 3B	4
Rex Reservoir	2B 3A	4
Salina Reservoir	2B 3A	4
Sheep Valley Reservoir	2B 3A	4

u. Summit County

TABLE

Abes Lake	2B 3A	4
Alexander Lake	2B 3A	4

Amethyst Lake	2B 3A	4
Beaver Lake	2B 3A	4
Beaver Meadow Reservoir	2B 3A	4
Big Elk Reservoir	2B 3A	4
Blanchard Lake	2B 3A	4
Bridger Lake	2B 3A	4
China Lake	2B 3A	4
Cliff Lake	2B 3A	4
Clyde Lake	2B 3A	4
Coffin Lake	2B 3A	4
Cuberant Lake	2B 3A	4
East Red Castle Lake	2B 3A	4
Echo Reservoir	1C 2A 3A	4
Fish Lake	2B 3A	4
Fish Reservoir	2B 3A	4
Haystack Reservoir #1	2B 3A	4
Henry's Fork Reservoir	2B 3A	4
Hoop Lake	2B 3A	4
Island Lake	2B 3A	4
Island Reservoir	2B 3A	4
Jesson Lake	2B 3A	4
Kamas Lake	2B 3A	4
Lily Lake	2B 3A	4
Lost Reservoir	2B 3A	4
Lower Red Castle Lake	2B 3A	4

Lyman Lake	2A	3A	4
Marsh Lake	2B	3A	4
Marshall Lake	2B	3A	4
McPheters Lake	2B	3A	4
Meadow Reservoir	2B	3A	4
Meeks Cabin Reservoir	2B	3A	4
Notch Mountain Reservoir	2B	3A	4
Red Castle Lake	2B	3A	4
Rockport Reservoir	1C 2A	3A	4
Ryder Lake	2B	3A	4
Sand Reservoir	2B	3A	4
Scow Lake	2B	3A	4
Smith Moorehouse Reservoir	1C	2B 3A	4
Star Lake	2B	3A	4
Stateline Reservoir	2B	3A	4
Tamarack Lake	2B	3A	4
Trial Lake	1C	2B 3A	4
Upper Lyman Lake	2B	3A	4
Upper Red Castle	2B	3A	4
Wall Lake Reservoir	2B	3A	4
Washington Reservoir	2B	3A	4
Whitney Reservoir	2B	3A	4

v. Tooele County

TABLE

Blue Lake	2B	3B	4
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Clear Lake	2B	3B	4
Grantsville Reservoir	2B	3A	4
Horseshoe Lake	2B	3B	4
Kanaka Lake	2B	3B	4
Rush Lake	2B	3B	
Settlement Canyon Reservoir	2B	3A	4
Stansbury Lake	2B	3B	4
Vernon Reservoir	2B	3A	4

w. Uintah County

TABLE

Ashley Twin Lakes (Ashley Creek)	1C	2B 3A	4
Bottle Hollow Reservoir		2B 3A	4
Brough Reservoir		2B 3A	4
Calder Reservoir		2B 3A	4
Crouse Reservoir		2B 3A	4
East Park Reservoir		2B 3A	4
Fish Lake		2B 3A	4
Goose Lake #2		2B 3A	4
Matt Warner Reservoir		2B 3A	4
Oaks Park Reservoir		2B 3A	4
Paradise Park Reservoir		2B 3A	4
Pelican Lake		2B 3B	4
Red Fleet Reservoir	1C 2A	3A	4
Steinaker Reservoir	1C 2A	3A	4
Towave Reservoir		2B 3A	4

Weaver Reservoir	2B 3A	4
Whiterocks Lake	2B 3A	4
Workman Lake	2B 3A	4

x. Utah County

TABLE

Big East Lake	2B 3A	4
Salem Pond	2A 3A	4
Silver Flat Lake Reservoir	2B 3A	4
Tibble Fork Reservoir	2B 3A	4
Utah Lake	2B 3B 3D	4

y. Wasatch County

TABLE

Currant Creek Reservoir	1C 2B 3A	4
Deer Creek Reservoir	1C 2A 3A	4
Jordanelle Reservoir	1C 2A 3A	4
Mill Hollow Reservoir	2B 3A	4
Strawberry Reservoir	1C 2B 3A	4

z. Washington County

TABLE

Baker Dam Reservoir	2B 3A	4
Gunlock Reservoir	1C 2A 3B	4
Ivins Reservoir	2B 3B	4
Kolob Reservoir	2B 3A	4
Lower Enterprise Reservoir	2B 3A	4
Quail Creek Reservoir	1C 2A 3B	4

Sand Hollow Reservoir	1C 2A	3B	4
Upper Enterprise Reservoir		2B 3A	4

aa. Wayne County

TABLE

Blind Lake		2B 3A	4
Cook Lake		2B 3A	4
Donkey Reservoir		2B 3A	4
Fish Creek Reservoir		2B 3A	4
Mill Meadow Reservoir		2B 3A	4
Raft Lake		2B 3A	4

bb. Weber County

TABLE

Causey Reservoir		2B 3A	4
Pineview Reservoir	1C 2A	3A	4

~~** Denotes site-specific temperature, see Table 2.14.2 Notes~~

13.13 Unclassified Waters

All waters not specifically classified are presumptively classified: 2B, 3D

R317-2-14. Numeric Criteria.

TABLE 2.14.1
NUMERIC CRITERIA FOR DOMESTIC,
RECREATION, AND AGRICULTURAL USES

Parameter	Domestic Source	Recreation and Aesthetics		Agri- culture
	1C <u>(1)</u>	2A	2B	4
BACTERIOLOGICAL (30-DAY GEOMETRIC MEAN) (NO.)/100 ML) (7)				
E. coli	206	126	206	
MAXIMUM (NO.)/100 ML) (7)				

E. coli	668	409	668
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PHYSICAL

pH (RANGE)	6.5-9.0	6.5-9.0	6.5-9.0	6.5-9.0
Turbidity Increase (NTU)		10	10	

METALS (DISSOLVED, MAXIMUM MG/L) (2)

Arsenic	0.01		0.1
Barium	1.0		
Beryllium	<0.004		
Cadmium	0.01		0.01
Chromium	0.05		0.10
Copper			0.2
Lead	0.015		0.1
Mercury	0.002		
Selenium	0.05		0.05
Silver	0.05		

INORGANICS (MAXIMUM MG/L)

Bromate	0.01		
Boron			0.75
Chlorite	<1.0		
Fluoride (3)	1.4-2.4		
Nitrates as N	10		
Total Dissolved Solids (4)			1200

RADIOLOGICAL

(MAXIMUM pCi/L)

Gross Alpha	15		15
Gross Beta (Combined)	4 mrem/yr	Radium 226, 228	
Strontium 90	5		
Tritium	8		
Uranium	20000		
	30		

ORGANICS (MAXIMUM UG/L)

Alachlor 15972-60-8	2
Atrazine 1912-24-9	3
Carbofuran 1563-66-2	40
Dalapon 75-99-0	200
Di (2ethylhexyl) adipate 103-23-1	400
Dibromochloropropane 96-12-8	0.2
Dinoseb 88-85-7	7

Diquat 85-00-7	20
Endothall 145-73-3	100
Ethylene Dibromide	
106-93-4	0.05
Methoxychlor 72-43-5	40
Methyl Chloride	
74-87-3	3
Ocamyl 23135-22-0	400
Picloram 1918-02-1	500
Simazine 122-34-9	4
Styrene 100-42-5	100
Chlorophenoxy	
Herbicides	
2,4-D 94-75-7	70
2,4,5-TP 93-72-1	10

POLLUTION

INDICATORS (5)

BOD (MG/L)	5	5	5
Nitrate as N (MG/L)	4	4	
Total Phosphorus as P (MG/L) (6)	0.05	0.05	

FOOTNOTES:

(1) ~~Reserved~~ See also numeric criteria for water and organism in Table 2.14.6.

(2) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by approved laboratory methods for the required detection levels.

(3) Maximum concentration varies according to the daily maximum mean air temperature.

TEMP (C)	MG/L
12.0	2.4
12.1-14.6	2.2
14.7-17.6	2.0
17.7-21.4	1.8
21.5-26.2	1.6
26.3-32.5	1.4

(4) SITE SPECIFIC STANDARDS FOR TOTAL DISSOLVED SOLIDS (TDS)

Blue Creek and tributaries, Box Elder County, from Bear River Bay, Great Salt Lake to Blue Creek Reservoir:

March through October daily maximum 4,900 mg/l and an average of 3,800 mg/l; November through February daily maximum 6,300 mg/l and an average of 4,700 mg/l. Assessments will be based on TDS concentrations measured at the location of STORET 4960740.

Blue Creek Reservoir and tributaries, Box Elder County,
daily maximum 2,100 mg/l;

Castle Creek from confluence with the Colorado River to Seventh
Day Adventist Diversion: 1,800 mg/l;

| Cottonwood Creek from the confluence with Huntington Creek to ±U-57:
3,500 mg/l;

Ferron Creek from the confluence with San Rafael River to Highway
10: 3,500 mg/l;

Huntington Creek and tributaries from the confluence with
Cottonwood Creek to U-10: 4,800 mg/l;

Ivie Creek and its tributaries from the confluence with Muddy
Creek to the confluence with Quitchupah Creek: 3,800 mg/l
provided that total sulfate not exceed 2,000 mg/l to
protect the livestock watering agricultural existing use;

Ivie Creek and its tributaries from the confluence with
Quitchupah Creek to U10: 2,600 mg/l;

Lost Creek from the confluence with Sevier River to U.S. Forest
Service Boundary: 4,600 mg/l;

Muddy Creek and tributaries from the confluence with Ivie Creek
to U-10: 2,600 mg/l;

Muddy Creek from confluence with Fremont River to confluence with
Ivie Creek: 5,800 mg/l;

North Creek from the confluence with Virgin River to headwaters:
2,035 mg/l;

Onion Creek from the confluence with Colorado River to road
crossing above Stinking Springs: 3000 mg/l;

Brine Creek-Petersen Creek, from the confluence with the Sevier
River to U-119 Crossing: 9,700 mg/l;

Price River and tributaries from confluence with Green River to
confluence with Soldier Creek: 3,000 mg/l;

Price River and tributaries from the confluence with Soldier
Creek to Carbon Canal Diversion: 1,700 mg/l

Quitchupah Creek from the confluence with Ivie Creek to U-10:
3,800 mg/l provided that total sulfate not exceed

2,000 mg/l to protect the livestock watering agricultural existing use;

Rock Canyon Creek from the confluence with Cottonwood Creek to headwaters: 3,500 mg/l;

San Pitch River from below Gunnison Reservoir to the Sevier River: 2,400 mg/l;

San Rafael River from the confluence with the Green River to Buckhorn Crossing: 4,100 mg/l;

San Rafael River from the Buckhorn Crossing to the confluence with Huntington Creek and Cottonwood Creek: 3,500 mg/l;

Sevier River between Gunnison Bend Reservoir and DMAD Reservoir: 1,725 mg/l;

Sevier River from Gunnison Bend Reservoir to Clear Lake: 3,370 mg/l;

South Fork Spring Creek from confluence with Pelican Pond Slough Stream to US 89
1,450 mg/l (Apr.-Sept.)
1,950 mg/l (Oct.-March)

Virgin River from the Utah/Arizona border to Pah Tempe Springs: 2,360 mg/l

(5) Investigations should be conducted to develop more information where these pollution indicator levels are exceeded.

(6) Total Phosphorus as P (mg/l) indicator for lakes and reservoirs shall be 0.025.

(7) Where the criteria are exceeded and there is a reasonable basis for concluding that the indicator bacteria *E. coli* are primarily from natural sources (wildlife), e.g., in National Wildlife Refuges and State Waterfowl Management Areas, the criteria may be considered attained provided the density attributable to non-wildlife sources is less than the criteria. Exceedences of *E. coli* from nonhuman nonpoint sources will generally be addressed through appropriate Federal, State, and local nonpoint source programs.

Measurement of *E. coli* using the "Quanti-Tray 2000" procedure is approved as a field analysis. Other EPA approved methods may also be used.

For water quality assessment purposes, up to 10% of representative samples may exceed the 668 per 100 ml criterion (for 1C and 2B waters) and 409 per 100 ml (for 2A waters). For small datasets, where exceedences of these criteria are observed, follow-up ambient monitoring should be conducted to better characterize water quality.

TABLE 2.14.2
NUMERIC CRITERIA FOR AQUATIC WILDLIFE (8)

Parameter	Aquatic Wildlife				
	3A	3B	3C	3D	5
PHYSICAL					
Total Dissolved Gases	(1)	(1)			
Minimum Dissolved Oxygen (MG/L) (2) (2a)					
30 Day Average	6.5	5.5	5.0	5.0	
7 Day Average	9.5/5.0	6.0/4.0			
Minimum	8.0/4.0	5.0/3.0	3.0	3.0	
Max. Temperature (C) (3)	20	27	27		
Max. Temperature Change (C) (3)	2	4	4		
pH (Range) (2a)	6.5-9.0	6.5-9.0	6.5-9.0	6.5-9.0	
Turbidity Increase (NTU)	10	10	15	15	
METALS (4)					
(DISSOLVED, UG/L) (5)					
Aluminum					
4 Day Average (6)	87	87	87	87	
1 Hour Average	750	750	750	750	
Arsenic (Trivalent)					
4 Day Average	150	150	150	150	
1 Hour Average	340	340	340	340	
Cadmium (7)					
4 Day Average	0.25	0.25	0.25	0.25	
1 Hour Average	2.0	2.0	2.0	2.0	
Chromium (Hexavalent)					
4 Day Average	11	11	11	11	
1 Hour Average	16	16	16	16	
Chromium (Trivalent) (7)					
4 Day Average	74	74	74	74	
1 Hour Average	570	570	570	570	

Copper (7)				
4 Day Average	9	9	9	9
1 Hour Average	13	13	13	13
Cyanide (Free)				
4 Day Average	5.2	5.2	5.2	
1 Hour Average	22	22	22	22
Iron (Maximum)	1000	1000	1000	1000
Lead (7)				
4 Day Average	2.5	2.5	2.5	2.5
1 Hour Average	65	65	65	65
Mercury				
4 Day Average	0.012	0.012	0.012	0.012
Nickel (7)				
4 Day Average	52	52	52	52
1 Hour Average	468	468	468	468
Selenium				
4 Day Average	4.6	4.6	4.6	4.6
1 Hour Average	18.4	18.4	18.4	18.4
Selenium (14)				
Gilbert Bay (Class 5A)				
Great Salt Lake				
Geometric Mean over				
Nesting Season (mg/kg dry wt)				12.5
Silver				
1 Hour Average (7)	1.6	1.6	1.6	1.6
Tributyltin				
4 Day Average	0.072	0.072	0.072	0.072
1 Hour Average	0.46	0.46	0.46	0.46
Zinc (7)				
4 Day Average	120	120	120	120
1 Hour Average	120	120	120	120
INORGANICS				
(MG/L) (4)				
Total Ammonia as N (9)				
30 Day Average	(9a)	(9a)	(9a)	(9a)
1 Hour Average	(9b)	(9b)	(9b)	(9b)
Chlorine (Total				
Residual)				
4 Day Average	0.011	0.011	0.011	0.011

1 Hour Average	0.019	0.019	0.019	0.019
Hydrogen Sulfide (Undissociated, Max. UG/L)	2.0	2.0	2.0	2.0
Phenol (Maximum)	0.01	0.01	0.01	0.01
RADIOLOGICAL (MAXIMUM pCi/L)				
ORGANICS (UG/L) (4)				
Acrolein				
4 Day Average	3.0	3.0	3.0	3.0
1 Hour Average	3.0	3.0	3.0	3.0
Aldrin				
1 Hour Average	1.5	1.5	1.5	1.5
Chlordane				
4 Day Average	0.0043	0.0043	0.0043	0.0043
1 Hour Average	1.2	1.2	1.2	1.2
Chlorpyrifos				
4 Day Average	0.041	0.041	0.041	0.041
1 Hour Average	0.083	0.083	0.083	0.083
4,4' -DDT				
4 Day Average	0.0010	0.0010	0.0010	0.0010
1 Hour Average	0.55	0.55	0.55	0.55
Diazinon				
4 Day Average	0.17	0.17	0.17	0.17
1 Hour Average	0.17	0.17	0.17	0.17
Dieldrin				
4 Day Average	0.056	0.056	0.056	0.056
1 Hour Average	0.24	0.24	0.24	0.24
Alpha-Endosulfan				
4 Day Average	0.056	0.056	0.056	0.056
1 Hour Average	0.11	0.11	0.11	0.11
beta-Endosulfan				
4 Day Average	0.056	0.056	0.056	0.056
1 Day Average	0.11	0.11	0.11	0.11
Endrin				
4 Day Average	0.036	0.036	0.036	0.036
1 Hour Average	0.086	0.086	0.086	0.086
Heptachlor				
4 Day Average	0.0038	0.0038	0.0038	0.0038
1 Hour Average	0.26	0.26	0.26	0.26

Heptachlor epoxide				
4 Day Average	0.0038	0.0038	0.0038	0.0038
1 Hour Average	0.26	0.26	0.26	0.26
Hexachlorocyclohexane (Lindane)				
4 Day Average	0.08	0.08	0.08	0.08
1 Hour Average	1.0	1.0	1.0	1.0
Methoxychlor (Maximum)	0.03	0.03	0.03	0.03
Mirex (Maximum)	0.001	0.001	0.001	0.001
Nonylphenol				
4 Day Average	6.6	6.6	6.6	6.6
1 Hour Average	28.0	28.0	28.0	28.0
Parathion				
4 Day Average	0.013	0.013	0.013	0.013
1 Hour Average	0.066	0.066	0.066	0.066
PCB's				
4 Day Average	0.014	0.014	0.014	0.014
Pentachlorophenol (11)				
4 Day Average	15	15	15	15
1 Hour Average	19	19	19	19
Toxaphene				
4 Day Average	0.0002	0.0002	0.0002	0.0002
1 Hour Average	0.73	0.73	0.73	0.73
POLLUTION INDICATORS (10)				
Gross Alpha (pCi/L)	15	15	15	15
Gross Beta (pCi/L)	50	50	50	50
BOD (MG/L)	5	5	5	5
Nitrate as N (MG/L)	4	4	4	
Total Phosphorus as P (MG/L) (12)	0.05	0.05		

FOOTNOTES:

(1) Not to exceed 110% of saturation.

(2) These limits are not applicable to lower water levels in deep impoundments. First number in column is for when early life stages are present, second number is for when all other life stages present.

(2a) These criteria are not applicable to Great Salt Lake impounded wetlands. Surface water in these wetlands shall be protected from changes in pH and dissolved oxygen that create significant adverse impacts to the existing beneficial uses.

To ensure protection of uses, the Director shall develop reasonable protocols and guidelines that quantify the physical, chemical, and biological integrity of these waters. These protocols and guidelines will include input from local governments, the regulated community, and the general public. The Director will inform the Water Quality Board of any protocols or guidelines that are developed.

(3) Site Specific Standards for Temperature

Ken's Lake: From June 1st - September 20th, 27 degrees C.

(4) Where criteria are listed as 4-day average and 1-hour average concentrations, these concentrations should not be exceeded more often than once every three years on the average.

(5) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by EPA approved laboratory methods for the required detection levels.

(6) The criterion for aluminum will be implemented as follows:

Where the pH is equal to or greater than 7.0 and the hardness is equal to or greater than 50 ppm as CaCO₃ in the receiving water after mixing, the 87 ug/l chronic criterion (expressed as total recoverable) will not apply, and aluminum will be regulated based on compliance with the 750 ug/l acute aluminum criterion (expressed as total recoverable).

(7) Hardness dependent criteria. 100 mg/l used. Conversion factors for ratio of total recoverable metals to dissolved metals must also be applied. In waters with a hardness greater than 400 mg/l as CaCO₃, calculations will assume a hardness of 400 mg/l as CaCO₃. See Table 2.14.3 for complete equations for hardness and conversion factors.

(8) ~~Reserved~~ [See also numeric criteria for organism only in Table 2.14.6.](#)

(9) The following equations are used to calculate Ammonia criteria concentrations:

(9a) The thirty-day average concentration of total ammonia nitrogen (in mg/l as N) does not exceed, more than once every three years on the average, the chronic criterion calculated using the following equations.

Fish Early Life Stages are Present:

$$\text{mg/l as N (Chronic)} = ((0.0577 / (1 + 10^{7.688 - \text{pH}})) + (2.487 / (1 + 10^{\text{pH} - 7.688}))) * \text{MIN} (2.85, 1.45 * 10^{0.028 * (25 - T)})$$

Fish Early Life Stages are Absent:

$$\text{mg/l as N (Chronic)} = ((0.0577 / (1 + 10^{7.688 - \text{pH}})) + (2.487 / (1 + 10^{\text{pH} - 7.688}))) * 1.45 * 10^{0.028 * (25 - \text{MAX}(T, 7))}$$

(9b) The one-hour average concentration of total ammonia nitrogen (in mg/l as N) does not exceed, more than once every three years on the average the acute criterion calculated using the following equations.

Class 3A:

mg/l as N (Acute) = $(0.275/(1+10^{7.204-\text{pH}})) + (39.0/(1+10^{\text{pH}-7.204}))$

Class 3B, 3C, 3D:

mg/l as N (Acute) = $0.411/(1+10^{7.204-\text{pH}}) + (58.4/(1+10^{\text{pH}-7.204}))$

In addition, the highest four-day average within the 30-day period should not exceed 2.5 times the chronic criterion.

The "Fish Early Life Stages are Present" 30-day average total ammonia criterion will be applied by default unless it is determined by the Director, on a site-specific basis, that it is appropriate to apply the "Fish Early Life Stages are Absent" 30-day average criterion for all or some portion of the year. At a minimum, the "Fish Early Life Stages are Present" criterion will apply from the beginning of spawning through the end of the early life stages. Early life stages include the pre-hatch embryonic stage, the post-hatch free embryo or yolk-sac fry stage, and the larval stage for the species of fish expected to occur at the site. The Director will consult with the Division of Wildlife Resources in making such determinations. The Division will maintain information regarding the waterbodies and time periods where application of the "Early Life Stages are Absent" criterion is determined to be appropriate.

(10) Investigation should be conducted to develop more information where these levels are exceeded.

(11) pH dependent criteria. pH 7.8 used in table. See Table 2.14.4 for equation.

(12) Total Phosphorus as P (mg/l) as a pollution indicator for lakes and reservoirs shall be 0.025.

(13) Reserved

(14) The selenium water quality standard of 12.5 (mg/kg dry weight) for Gilbert Bay is a tissue based standard using the complete egg/embryo of aquatic dependent birds using Gilbert Bay based upon a minimum of five samples over the nesting season. Assessment procedures are incorporated as a part of this standard as follows:

Egg Concentration Triggers: DWQ Responses

Below 5.0 mg/kg: Routine monitoring with sufficient intensity to determine if selenium concentrations within the Great Salt Lake ecosystem are increasing.

5.0 mg/kg: Increased monitoring to address data gaps, loadings, and areas of uncertainty identified from initial Great Salt Lake selenium studies.

6.4 mg/kg: Initiation of a Level II Antidegradation review by the State for all discharge permit renewals or new discharge permits to Great Salt Lake. The Level II Antidegradation review may include an analysis of loading reductions.

9.8 mg/kg: Initiation of preliminary TMDL studies to evaluate selenium loading sources.

12.5 mg/kg and above: Declare impairment. Formalize and implement TMDL.

Antidegradation

Level II Review procedures associated with this standard are referenced at R317-2-3.5.C.

TABLE
1-HOUR AVERAGE (ACUTE) CONCENTRATION OF
TOTAL AMMONIA AS N (MG/L)

pH	Class 3A	Class 3B, 3C, 3D
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.89	1.32

TABLE
30-DAY AVERAGE (CHRONIC) CONCENTRATION OF
TOTAL AMMONIA AS N (MG/l)

Fish Early Life Stages Present									
Temperature, C									
pH	0	14	16	18	20	22	24	26	28 30

6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.90
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.88	0.77
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.97	0.86	0.75	0.66
8.3	1.52	1.52	1.39	1.22	1.07	0.94	0.83	0.73	0.64	0.56
8.4	1.29	1.29	1.17	1.03	0.91	0.80	0.70	0.62	0.54	0.48
8.5	1.09	1.09	0.99	0.87	0.76	0.67	0.59	0.52	0.46	0.40
8.6	0.92	0.92	0.84	0.73	0.65	0.57	0.50	0.44	0.39	0.34
8.7	0.78	0.78	0.71	0.62	0.55	0.48	0.42	0.37	0.33	0.29
8.8	0.66	0.66	0.60	0.53	0.46	0.41	0.36	0.32	0.28	0.24
8.9	0.56	0.56	0.51	0.45	0.40	0.35	0.31	0.27	0.24	0.21
9.0	0.49	0.49	0.44	0.39	0.34	0.30	0.26	0.23	0.20	0.18

TABLE
30-DAY AVERAGE (CHRONIC) CONCENTRATION OF
TOTAL AMMONIA AS N (MG/l)

Fish Early Life Stages Absent									
Temperature, C									
pH	0-7	8	9	10	11	12	13	14	16
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.36	6.89	6.06
6.6	10.7	10.1	9.37	8.92	8.79	8.24	7.72	7.24	6.36
6.7	10.5	9.99	9.20	8.62	8.08	7.58	7.11	6.66	5.86
6.8	10.2	9.81	8.98	8.42	7.90	7.40	6.94	6.51	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.30
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.25
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	2.89
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.54
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.21

8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	1.91
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.63
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.39
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.17
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	0.990
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.836
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.707
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.601
8.9	0.917	0.860	0.806	0.758	0.709	0.664	0.623	0.584	0.513
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.442

pH	18	20	22	24	26	28	30
6.5	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	4.41	3.78	3.33	2.92	2.57	2.26	1.99
7.3	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	0.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	0.68	1.47	1.29	1.14	1.00	0.879	0.733
8.2	0.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	0.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	0.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.735	0.646	0.568	0.499	0.439	0.396	0.339
8.7	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.389	0.342	0.300	0.264	0.232	0.204	0.179

TABLE 2.14.3a

EQUATIONS TO CONVERT TOTAL RECOVERABLE METALS STANDARD
WITH HARDNESS (1) DEPENDENCE TO DISSOLVED METALS STANDARD
BY APPLICATION OF A CONVERSION FACTOR (CF) .

Parameter 4-Day Average (Chronic)
Concentration (UG/L)

CADMIUM $CF * e^{(0.7409 \ln(\text{hardness})) - 4.719}$
 $CF = 1.101672 - \ln(\text{hardness}) (0.041838)$

CHROMIUM III

$$CF * e^{(0.8190(\ln(\text{hardness})) + 0.6848)}$$

$$CF = 0.860$$

COPPER

$$CF * e^{(0.8545(\ln(\text{hardness})) - 1.702)}$$

$$CF = 0.960$$

LEAD

$$CF * e^{(1.273(\ln(\text{hardness})) - 4.705)}$$

$$CF = 1.46203 - \ln(\text{hardness}) (0.145712)$$

NICKEL

$$CF * e^{(0.8460(\ln(\text{hardness})) + 0.0584)}$$

$$CF = 0.997$$

SILVER

N/A

ZINC

$$Cf * e^{(0.8473(\ln(\text{hardness})) + 0.884)} \quad CF = 0.986$$

TABLE 2.14.3b

EQUATIONS TO CONVERT TOTAL RECOVERABLE METALS STANDARD
WITH HARDNESS (1) DEPENDENCE TO DISSOLVED METALS STANDARD
BY APPLICATION OF A CONVERSION FACTOR (CF) .

Parameter 1-Hour Average (Acute)
Concentration (UG/L)

CADMIUM

$$CF * e^{(1.0166(\ln(\text{hardness})) - 3.924)}$$

$$CF = 1.136672 - \ln(\text{hardness}) (0.041838)$$

CHROMIUM (III)

$$CF * e^{(0.8190(\ln(\text{hardness})) + 3.7256)}$$

$$CF = 0.316$$

COPPER

$$CF * e^{(0.9422(\ln(\text{hardness})) - 1.700)}$$

$$CF = 0.960$$

LEAD

$$CF * e^{(1.273(\ln(\text{hardness})) - 1.460)}$$

$$CF = 1.46203 - \ln(\text{hardness}) (0.145712)$$

NICKEL

$$CF * e^{(0.8460(\ln(\text{hardness})) + 2.255)}$$

$$CF = 0.998$$

SILVER

$$CF * e^{(1.72(\ln(\text{hardness})) - 6.59)}$$

$$CF = 0.85$$

ZINC

$$CF * e^{(0.8473(\ln(\text{hardness})) + 0.884)}$$

$$CF = 0.978$$

FOOTNOTE:

(1) Hardness as mg/l CaCO₃.

TABLE 2.14.4
EQUATIONS FOR PENTACHLOROPHENOL
(pH DEPENDENT)

4-Day Average (Chronic) Concentration (UG/L)	1-Hour Average (Acute) Concentration (UG/L)
$e^{(1.005(\text{pH}) - 5.134)}$	$e^{(1.005(\text{pH}) - 4.869)}$

TABLE 2.14.5
SITE SPECIFIC CRITERIA FOR
DISSOLVED OXYGEN FOR JORDAN RIVER, SURPLUS CANAL, AND STATE CANAL
(SEE SECTION 2.13)

DISSOLVED OXYGEN:

May-July

7-day average 5.5 mg/l

30-day average 5.5 mg/l

Instantaneous minimum 4.5 mg/l

August-April

30-day average 5.5 mg/l

Instantaneous minimum 4.0 mg/l

TABLE 2.14.6
LIST OF HUMAN HEALTH CRITERIA (CONSUMPTION)

Chemical Parameter <u>and</u> <u>CAS #</u>	Water and Organism (ug/L) Class 1C	Organism Only (ug/L) Class 3A, 3B, 3C, 3D
Antimony <u>7440-36-0</u>	5.6	640
Arsenic <u>7440-38-2</u>	A	A
Beryllium <u>7440-41-7</u>	C	C
<u>Cadmium</u>	<u>C</u>	<u>C</u>
Chromium III <u>16065-83-1</u>	C	C
Chromium VI <u>18540-29-9</u>	C	C
Copper <u>7440-50-8</u>	1,300	
<u>Lead</u>	<u>C</u>	<u>C</u>
Mercury <u>7439-97-6</u>	A	A
Nickel <u>7440-02-0</u>	<u>610100 MCL</u>	4,600
Selenium <u>7782-49-2</u>	<u>170A</u>	4,200
Thallium <u>7440-28-0</u>	0.24	0.47
Zinc <u>7440-66-6</u>	7,400	26,000
<u>Free</u> Cyanide <u>57-12-5</u>	140	140
Asbestos <u>1332-21-4</u>	7 million Fibers/L	
2,3,7,8-TCDD Dioxin <u>1746-01-6</u>	5.0 E -9 B	5.1 E-9 B
Acrolein <u>107-02-8</u>	<u>63.0</u>	<u>9400.0</u>
Acrylonitrile <u>107-13-1</u>	0.051- <u>061B</u>	<u>0.257.0 B</u>

<u>Alachlor</u>	<u>2.0</u>		
<u>Atrazine</u>	<u>3.0</u>		
Benzene <u>71-43-2</u>	<u>2.12</u> B	51 B	
Bromoform <u>75-25-2</u>	<u>4.37.0</u> B	<u>120140</u> B	
<u>Carbofuran</u>	<u>40</u>		
Carbon Tetrachloride <u>56-23-5</u>	<u>0.423</u> B	<u>51.6</u> B	
Chlorobenzene <u>57-12-5</u>	100 MCL	1,600	
Chlorodibromomethane <u>124-48-1</u>	<u>0.40</u> B	13 B	
<u>Chloroethane</u>			
<u>2-Chloroethylvinyl Ether</u>			
Chloroform <u>67-66-3</u>	5.7 B	470 B	
<u>Dalapon</u>	<u>200</u>		
<u>Di (2ethylhexyl) adipate</u>	<u>400</u>		
<u>Dibromochloropropane</u>	<u>0.2</u>		
Dichlorobromomethane <u>75-27-4</u>	<u>0.55</u> B	17 B	
<u>1,1-Dichloroethane</u>			
1,2-Dichloroethane <u>107-06-2</u>	<u>9.90.38</u> B	<u>65037</u> B	
1,1-Dichloroethylene <u>75-35-4</u>	<u>3007</u> MCL	<u>20,0007,100</u>	
Dichloroethylene (cis-1,2) <u>156-59-2</u>	70		
<u>Dinoseb</u>	<u>7.0</u>		
Diquat <u>231-36-7</u>	20		
1,2-Dichloropropane <u>78-87-5</u>	<u>0.900.50</u> B	<u>15-31</u> B	
1,3-Dichloropropane <u>542-75-6</u>	<u>0.270.34</u>	<u>1221</u>	
<u>Endothall</u>	<u>100</u>		
Ethylbenzene <u>100-41-4</u>	<u>68530</u>	<u>1302,100</u>	
<u>Ethylene Dibromide</u>	<u>0.05</u>		
Glyphosate <u>1071-83-6</u>	700		
<u>Haloacetic acids</u>	<u>60 E</u>		
Methyl Bromide <u>74-83-9</u>	<u>10047</u>	<u>10,0001,500</u>	
<u>Methyl Chloride</u>	<u>F</u>	<u>F</u>	
Methylene Chloride <u>75-09-2</u>	<u>204.6</u> MCL-B	<u>1,000590</u> B	
<u>Ocaml (vidate)</u>	<u>200</u>		
<u>Picloram</u>	<u>500</u>		
<u>Simazine</u>	<u>4</u>		
<u>Styrene</u>	<u>100</u>		
1,1,2,2-Tetrachloroethane <u>79-34-5</u>	<u>0.20.17</u> B	<u>34.0</u> B	
Tetrachloroethylene <u>127-18-4</u>	<u>100.69</u> B	<u>293.3</u> B	
Toluene <u>108-88-3</u>	<u>571,000</u>	<u>52015,000</u>	
1,2 -Trans-Dichloroethylene <u>156-60-5</u>	100 MCL	<u>4,00010,000</u>	
1,1,1-Trichloroethane <u>71-55-6</u>	<u>10,000200</u> MCL	<u>200,000F</u>	
1,1,2-Trichloroethane <u>79-00-5</u>	<u>0.559</u> B	<u>8.916</u> B	
Trichloroethylene <u>79-01-6</u>	<u>0.62.5</u> B	<u>730</u> B	
Vinyl Chloride <u>75-01-4</u>	<u>0.02225</u> -B	<u>1.62.4</u> B	
Xylenes <u>1330-20-7</u>	10,000		
2-Chlorophenol <u>95-57-8</u>	<u>3081</u>	<u>800150</u>	
2,4-Dichlorophenol <u>120-83-2</u>	<u>1077</u>	<u>60290</u>	
2,4-Dimethylphenol <u>105-67-9</u>	<u>100380</u>	<u>3,000850</u>	

2-Methyl-4,6-Dinitrophenol		
<u>534-52-1</u>	<u>213.0</u>	<u>30280</u>
2,4-Dinitrophenol <u>51-28-5</u>	<u>1069</u>	<u>3005,300</u>
<u>2-Nitrophenol</u>		
<u>4-Nitrophenol</u>		
3-Methyl-4-Chlorophenol		
<u>59-50-7</u>	<u>500</u>	<u>2,000</u>
Penetachlorophenol <u>87-86-5</u>	<u>0.030.27 B</u>	<u>0.043.0 B</u>
Phenol <u>108-95-2</u>	<u>4,00010,000</u>	<u>300,000860,000</u>
<u>2,4,5-Trichlorophenol</u> <u>95-95-4</u>	<u>300</u>	<u>600</u>
2,4,6-Trichlorophenol <u>88-06-2</u>	<u>1.51.4 B</u>	<u>2.82.4 B</u>
Acenaphthene <u>83-32-9</u>	<u>67070</u>	<u>99090</u>
<u>Acenaphthylene</u>		
Anthracene <u>120-12-7</u>	<u>8,300300</u>	<u>400,000</u>
Benzidine <u>92-87-5</u>	<u>0.00014086 B</u>	<u>0.0110020 B</u>
BenzoaAnthracene <u>56-55-3</u>	<u>0.001238 B</u>	<u>0.001318 B</u>
BenzoaPyrene <u>50-32-8</u>	<u>0.0001238 B</u>	<u>0.0001318 B</u>
BenzobFluoranthene <u>205-99-2</u>	<u>0.001238 B</u>	<u>0.018 B</u>
<u>BenzoghiPerylene</u>		
BenzokFluoranthene <u>207-08-9</u>	<u>0.012038 B</u>	<u>0.0138 B</u>
<u>Bis2-ChloroethoxyMethane</u>		
—Bis2-ChloroethylEther—		
<u>111-44-40</u>	<u>.030 B</u>	<u>2.20.53 B</u>
<u>Bis2-Chlorolmethylether</u>		
<u>542-88-1</u>	<u>0.00015</u>	<u>0.017</u>
<u>Bis2-Chlorolmethylethylether</u>		
<u>108-60-1</u>	<u>200 B</u>	<u>4000</u>
Bis2-ChloroisopropylEther		
<u>39638-32-9</u>	<u>1,400</u>	<u>65,000</u>
Bis2-EthylhexylPhthalate		
<u>117-81-7</u>	<u>0.321.2 B</u>	<u>0.372.2 B</u>
<u>4-Bromophenyl Phenyl Ether</u>		
Butylbenzyl Phthalate		
<u>85-68-7</u>	<u>0.11,500</u>	<u>0.101,900</u>
2-Chloronaphthalene <u>91-58-7</u>	<u>8001,000</u>	<u>1,0001,600</u>
<u>4-Chlorophenyl Phenyl Ether</u>		
Chrysene	<u>0.0038 B</u>	<u>0.018 B</u>
Dibenzoa,hAnthracene	<u>0.0038 B</u>	<u>0.018 B</u>
1,2-Dichlorobenzene <u>95-50-1</u>	<u>1,000420</u>	<u>3,0001,300</u>
1,3-Dichlorobenzene <u>541-73-1</u>	<u>7320</u>	<u>10960</u>
1,4-Dichlorobenzene <u>106-46-7</u>	<u>30063</u>	<u>900190</u>
3,3-Dichlorobenzidine		
<u>91-94-1</u>	<u>0.04921 B</u>	<u>0.15028 B</u>
Diethyl Phthalate <u>64-66-2</u>	<u>60017,000</u>	<u>60044,000</u>
Dimethyl Phthalate <u>131-11-3</u>	<u>2,000270,000</u>	<u>2,0001,100,000</u>
Di-n-Butyl Phthalate <u>84-74-2</u>	<u>202,000</u>	<u>304,500</u>
2,4-Dinitrotoluene <u>121-14-2</u>	<u>0.4911 B</u>	<u>1.73.4 B</u>
2,6-Dinitrotoluene		
<u>Dinitrophenols</u> <u>25550-58-7</u>	<u>10</u>	<u>1,000</u>
<u>Di-n-Octyl Phthalate</u>		

1,2-Diphenylhydrazine	<u>122-66-7</u>	0.036 B	0.20 B
Fluoranthene	<u>206-44-0</u>	<u>20130</u>	<u>20140</u>
Fluorene	<u>86-73-7</u>	<u>501,100</u>	<u>705,300</u>
Hexachlorobenzene	<u>118-74-1</u>	0.00007928 B	0.00007929 B
Hexachlorobutadiene	<u>87-68-3</u>	0.0144 B	0.0148 B
Hexachloroethane		1.4 B	3.3 B
Hexachlorocyclopentadiene	<u>77-47-4</u>	<u>440</u>	<u>41,100</u>
Ideno 1,2,3-cdPyrene	<u>193-39-5</u>	0.001238 B	0.001318 B
Isophorone	<u>78-59-1</u>	<u>3435</u> B	<u>1,800960</u> B
Naphthalene			
Nitrobenzene	<u>98-95-3</u>	<u>1017</u>	<u>600690</u>
N-Nitrosodiethylamine	<u>55-18-5</u>	0.0008 B	1.24 B
N-Nitrosodimethylamine	<u>62-75-9</u>	0.00069 B	3.0 B
N-Nitrosodi-n-Propylamine	<u>621-64-7</u>	0.005 B	0.51 B
N-Nitrosodiphenylamine	<u>86-30-6</u>	3.3 B	6.0 B
N-Nitrosoyrrolidine	<u>930-55-2</u>	0.016 B	34 B
Pentachlorobenzene	<u>608-93-5</u>	0.1	0.1
Phenanthrene			
Pyrene	<u>129-00-0</u>	<u>20830</u>	<u>304,000</u>
1,2,4-Trichlorobenzene	<u>120-82-1</u>	0.07 MCL35	0.07670
Aldrin	<u>309-00-2</u>	0.000007749 B	0.000007750 B
alpha-BHC	<u>319-84-6</u>	0.0026-0.00036B	0.0049 B0.000050
beta-BHC	<u>319-85-7</u>	0.0091-008 B	0.017-014 B
gamma-BHC (Lindane)	<u>58-89-9</u>	4.20.2 MCL	4.41.8
delta-BHC			
Hexachlorocyclohexane (HCH) Technical	<u>608-73-1</u>	0.0066	0.010
Chlordane	<u>57-74-9</u>	0.00080-00030 B	0.0003281 B
4,4-DDT	<u>50-29-3</u>	0.00003022 B	0.00003022 B
4,4-DDE	<u>72-55-9</u>	0.00001822 B	0.00001822 B
4,4-DDD	<u>72-54-8</u>	0.0001231 B	0.0001231 B
Dieldrin	<u>60-57-1</u>	0.000001252 B	0.000001254 B
alpha-Endosulfan	<u>959-98-8</u>	<u>2062</u>	<u>3089</u>
beta-Endosulfan	<u>33213-65-9</u>	<u>2062</u>	<u>4089</u>
Endosulfan Sulfate	<u>1031-07-8</u>	<u>2062</u>	<u>4089</u>
Endrin	<u>72-20-8</u>	0.0359	0.0360
Endrin Aldehyde	<u>7421-93-4</u>	<u>10.29</u>	<u>10.30</u>
Heptachlor	<u>76-44-8</u>	0.000005979 B MCL	0.000005979 B
Heptachlor Epoxide	<u>1024-57-3</u>	0.0000329 B	0.0000329 B
Methoxychlor	<u>72-43-5</u>	0.02 MCL	0.02
Polychlorinated Biphenyls		0.000064 B,D	0.000064 B,D
PCB's			
Toxaphene	<u>8001-35-2</u>	0.000728 B	0.00028-00071 B
Footnotes:			
CAS #	Chemical Abstracts Service Registry Number		

- A. See Table 2.14.2
- B. Based on carcinogenicity of 10^{-6} risk.
- C. EPA has not calculated a human criterion for this contaminant. However, permit authorities should address this contaminant in NPDES permit actions using the State's existing narrative criteria for toxics
- D. This standard applies to total PCBs.

KEY: water pollution, water quality standards

Date of Enactment or Last Substantive Amendment: November 30, 2015

Notice of Continuation: October 2, 2012 1329

Authorizing, and Implemented or Interpreted Law: 19-5; FWPCA 33 USC 1251, 1311-1317,